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USSR Report

AGRICULTURE

No. 1236

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MAJOR CROP PROGRESS AND WEATHER REPORTING

WEATHER AFFECTS CROP PROGRESS IN COUNTRY

[Editorial Report] Newspaper reports in the USSR continue to report delays in field work due to late snows and the cold, wet spring. As far back as late March a short newspaper article quotes a kolkhoz brigade leader from Kabodiyenskiy Rayon, Tadzhikistan:

"We thought that February was the culprit holding up spring but March has in no way warmed up the soil." The article in Moscow PRAVDA in Russian 26 Mar 80 p 1 continues, "The weather has in truth not favored the crop farmers. The Vashkh Valley is a subtropical zone--usually it is green at this time and the large scale sowing of cotton is beginning. But now only the almonds are blooming shyly and we have to wait while it warms up."

The eastern Black Sea area was not spared wintery weather even a month later. The resort city of Sochi endured an unusually cold spell accompanied by precipitation which left a wet snow cover on the city briefly, according to Moscow TRUD in Russian 19 Apr 80 p 4.

Two items appearing in late April in Moscow GUDOK in Russian 27 Apr 80 p 4 indicate that Armenia's position south of the Caucasus Mountains was not enough to shield it from some adverse weather. A brief relates the story of a flock of 150 cranes being forced down around Lake Dzhogaz by icy winds as the weather took a sudden turn for the worse.

Another item appearing in Yerevan KOMMUNIST in Russian 27 Apr 80 p 2 reports on a meeting of the Armenian Council of Ministers. In the article the Armenian ministries of agriculture, procurement, land reclamation and water management, and the food industry, the State Committee for agricultural equipment, the board of the Armenian Cooperative [Aykoop], and other ministries, departments and organizations, sovkhoz directors and kolkhoz boards are called upon to take all measures to liquidate the consequences of the adverse weather in the shortest possible time, to take necessary agrotechnical measures for the restoration of perennial plantings and crop stands.

The beginning of May did not mean the end of the snow. A report in Moscow PRAVDA in Russian 4 May 80 p 6 from around the settlement of Buron in the Alagir Gorge, in the southern part of North Ossetia:

"Spring plastered the central Caucasus with mighty salvos of snow."

The weather situation in the Soviet south-east was more favorable in early May: "Spring in the Chuya Valley [Kirgizstan] turned out propitiously for the crop farmers: reasonably warm, reasonably rainy..," according to Moscow PRAVDA in Russian 3 May 80 p 1.

Field work progress in the Baltic area was held up by adverse weather. In Lithuania "rains and the return of cold weather complicated the course of spring field work," according to Vilnius SOVETSKAYA LITVA in Russian 8 May 80 p 1.

In Latvia an early May report in Riga SOVETSKAYA LATVIYA in Russian 7 May 80 p 1 refers to work proceeding at a fast pace despite cold and adverse weather. However, "the portion of those rayons where the snow fell have been put into a complicated situation."

"Precipitation hindered the course of the sowing campaign for the past week," according to Tallinn SOVETSKAYA ESTONIYA in Russian 7 May 80 p 1.

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CONCERN ABOUT GRAIN AND FEED IN BELORUSSIAN SSR

Moscow SEL'SKAYA ZHIZN' in Russian 6 May 80 p 1

[Article by V. Legan'kov (correspondent of SEL'SKAYA ZHIZN'), Belorussian SSR: "Concern About Grain and Feed"]

[Text] The kolkhozes and sovkhozes of Belorussia plan to harvest 32 centners of cereal grain per hectare and to drastically increase the production of coarse and succulent feed.

The weather has been such that planting of potatoes is being deployed in the southern and southwestern part of this republic, while in the north and northeastern parts the winter crops are just beginning to sprout. The local kolkhozes and sovkhozes cannot really undertake the sowing of early spring crops. The unstable and difficult spring has compelled the farmers to tighten their work schedules and perform work of the highest quality.

The first concern is about the fields of grain, which occupy over half the plowed land. This is valid. For the grain growers have taken on heavy obligations, having decided to bring the gross grain harvest up to 9 million tons, with a yield of 32 centners per hectare. It is primarily the experience gained that makes such a goal realistic. While the annual average under the 8th Five-Year Plan was 13.1 centners of grain and leguminous crops per hectare, the figure for the current five-year plan is 22.6 centners. True, the extremely inclement weather of the past season had an adverse effect on level of grain production, but even then the leading kolkhozes and sovkhozes produced a harvest of 35-40 centners.

At the present time, the slogan "Fulfilment of obligations to be guaranteed starting in the spring," has become a mandatory requirement. Utmost reduction of time spent on field work has gained special importance. In all areas, the Ipatov method of labor organization has been adopted. the production control [or dispatcher] service is being used extensively, and machinery is serviced at night. The efficiency experts [rationalizers] have worked like never before to see that efficient use is made of high-power T-150K and K-700 tractors. Previously, because of a shortage of special cultivators and sowing machines, they operated at half capacity, but now a large number of sower and doubled up cultivators adapted for application of liquid fertilizer have been produced for these tractors.

Wide-sweep equipment is also being attached more and more often to caterpillar tractors. Hundreds of mechanized sower loaders have appeared, particularly those based on the SK-4 combines that have been written off. At the Zarya kolkhoz, Glubokskiy Rayon, Vitebskaya Oblast, containers for simultaneous application of ammonia water have been suspended on the 8-m wide cultivator; in Berestovitskiy Rayon of Grodnenskaya Oblast, there are 82 sowing machine loaders and potato planters, 21 wide-sweep cultivators and about 30 sower hitches in operation. The Brestskaya Oblast administration for agriculture approved, already in the course of sowing, the knowhow of Ivanovskiy Rayon in the manufacture and use of simple but efficient wide-span machinery, and has disseminated this practice. In Minskaya Oblast, about 450 sower hitches and 500 combined units for presowing cultivation have been driven out on the fields.

It is expressly thanks to such preparation combined with good organization of labor that one can tighten the sowing work schedule. For example, at the Lyubanskaya experimental base in Minskaya Oblast, spring grain crops were planted in 3 days; at the kolkhoz imeni Pritytskiy, in Berestovitskiy Rayon of Grodnenskaya Oblast, an entire week of sowing work was saved, while at the Druzhba kolkhoz in Dobrushskiy Rayon, Gomel'skaya Oblast, all 1000 hectares of early crops were planted in 4 days. There are very numerous instances of crews sowing 50-80 hectares per day.

In guaranteeing a large harvest, the crop growers have carefully planned the tactics for their work. In this republic, there are plans to expand sowing areas and upgrade the structure of the grain fields. At present, 3,150,000 hectares have been allocated for grain and leguminous crops, which is 100,000 ha more than actually harvested last year. Winter rye, being the most valuable food crop, takes up 1.1 million ha. There are about 300 aircraft and helicopters, 17,000 pieces of ground equipment, including 6000 grain sowers involved in delivering food to the winter crops. There will be two feedings for soil of a light mechanical composition, at the start of vegetation and the end of the "shooting" stage. There is a significant increase in use of growth inhibitors in order to prevent lodging. Kampozan, a new and highly effective retardant, will be used for the first time on a large scale on rye fields.

Special attention is being given to placement of spring grain crops in different zones of the republic and in rotating crop fields, with due consideration of soil and climate conditions. Barley fields are concentrated mainly in areas with the most fertile soil. For example, barley will constitute 28% of grain crop structure in Gomel'skaya Oblast, 39% in Minskaya and 45.4% in Vitebskaya oblast. And, while every fourth hectare of barley was previously planted on stubble fields and other precursors that were not any better, at the present time all of the crops will be on fields previously used for row crops, leguminous crops and perennial grasses.

The fertilization system plays an important role in the agrotechnological complex for spring fields. In order to assure maximum effectiveness of fertilizers, the estimates for use thereof in all forms of the republic were made on computers. On the average, there are 230 kg active fertilizer ingredient per planted ha, including 52 kg of scarce phosphorus. The most progressive method of application of granulated superphosphate in rows is used everywhere. A total of 22 million tons of organic fertilizers are used on spring grain crop fields at the rate of 20 tons per ha. All fields used for such crops that presented high acidity were limed. Ammonia water is used extensively during the main preparation of soil, and this makes it possible to allocate more sold nitrogen fertilizers for supplemental feeding of perennial grasses, meadows and pastures.

There is also another important distinction to this spring: feed crops are on an equal footing with cereal crops. This republic's kolkhozes and sovkhozes plan to increase the fodder reserves to 21 million tons of feed units and 2.2 million tons of digestible protein. Additional steps have been developed and are taken everywhere to increase production and improve the quality of coarse and succulent feed. In particular, following the example of Grodnenskaya Oblast, the amount of corn planted for silage has doubled, and there has been a drastic increase in work pertaining to spring care of meadows and pastures, as well as perennial grasses. More attention is being given to root crops, annual grasses, and there are plans to enlarge the fields occupied by repeated and late-summer crops.

The irrigation equipment and feed gathering machinery are being repaired in advance, and all this is an organic part of the spring work. Organizational forms that are new to the republic are being used extensively to increase its effectiveness and improve its quality: there are interfarm feed producing enterprises in Gomel'skaya and other oblasts; in Vitebskaya Oblast there are unassigned ["beznaryadnyye"] units that operate on the principle of brigade contracts, and in Mogilevskaya Oblast there are interfarm enterprises for mechanization of agriculture. In a word, the entire arsenal of the farmer is already working on the harvest starting in the spring.
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MAJOR CROP PROGRESS AND WEATHER REPORTING

FIELD WORK PROGRESS REPORT FROM OMSKAYA OBLAST

Moscow SEL'SKAYA ZHIZN' in Russian 6 May 80 p 1

[Article by M. Sil'vanovich (correspondent of SEL'SKAYA ZHIZN'). Omskaya Oblast: "Time is Short"]

[Text] At the present time, the farmers of Omskaya Oblast are trying to secure the achievements made last year when they raised a record amount of grain. Spring has warned them that the road will not be easy, it will be a late sowing time. For this reason, sowing should be done properly, on well-cultivated soil, and the full amount of fertilizers must be used....

The machine operators of kolkhozes and sovkhozes have started to feed the grasses and winter crops. Such work is being done best of all in Kormilovskiy, Mar'yanovskiy, Novovarshavskiy and Nazyvayevskiy rayons.

We talked with A. A. Moroz, chief agronomist of the oblast agricultural administration, about the organizational and technological distinctions of the sowing work.

"The main distinction," Aleksey Antonovich says, "is that last year's inclement autumn left quite a lot of work to be done. We have to gather twice as much straw from 1 million hectares than in ordinary years prior to spring plowing. True, the term "spring plowing" is used with qualification at the farms of Omskaya Oblast, and in each region that differs in soil and climate it refers to something specially inherent to it. Thus, in the steppe and southern forest-steppe, preference is given to minimal superficial tilling, in the northern forest-steppe to plowing but virtually without furrowing, and terrace plowing in the subtayga and tayga region. The main point is not to delay, not even for an hour, in covering up the wet soil!"

Of course, in such a situation, labor and technological discipline must be strong, and the role of competent organization of labor increases. As before, the orientation is on complexes developed by the Ipatov method. There is intensified inspection of fulfilment of assignments for each shift. On the average, in this oblast the productivity of the equipment must be 40% higher than usual, as this is the only way that one can maintain the pace dictated by the prevailing spring conditions. It is planned to tune up the sowing machines in advance, and complexes will be driven out to the starting positions.

Three to five days are scheduled for each cultivar. The general estimate is to complete sowing grain crops in 10, 12 days at most, and to inspect the seedlings within the first 5 days of June.

Grain crops will cover almost 2.4 million hectares, 80% of which have good precursors. Thus, 600,000 ha will be on fallow land and 1 million ha on crop rotation fields with short rotation, where every fourth field is pure fallow land. Emphases has been laid on more efficient use of fertilizers. In all, 970,000 ha of grain crop fields will be treated with fertilizer.

The current data being received these days from rayons and farms indicate that the front of field and preparatory work is widening on the eve of sowing time. Certified seeds have bene procured for the entire sowing area in the main grain crop regions. Wet soil has already been covered over 300,000 ha.

Spring is asserting itself, but still the matter of equipment overhaul has not been entirely taken care of. More than 2500 tractors, including 400 high-power K-700 units, are not ready to work! There is a danger that many of them will never be able to participate in the spring harvesting. The overhaul resources of Goskomsel'khoztekhnika [State committee for agricultural equipment] do not have any turbocompressors, temperature and oil pressure gauges, and there is a shortage of batteries.
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MAJOR CROP PROGRESS AND WEATHER REPORTING

REPORT FROM VOLGOGRADSKAYA OBLAST

Moscow SEL'SKAYA ZHIZN' in Russian 7 May 80 p 1

[Article by V. Losev (foreign correspondent of SEL'SKAYA ZHIZN'), Volgogradskaya Oblast: "For a Heavier Spike"]

[Excerpts] The existing situation made it necessary to immediately search for additional reserves to expedite spring harvesting in all farms of Volgogradskaya Oblast. For the farmers have decided to obtain at least 20 centners of grain per hectare in the final year of the current five-year plan. Achievement of the planned productivity of grain fields, which cover almost 4 million hectares, would permit coverage of the developed debt and fulfillment of the assignment stipulated under the five-year plan.

Experience has shown that strict adherence to all recommendations for cultivating agricultural crops yields a good return. At the progressive kolkhozes and sovkhozes, the mean annual harvest for the past period of the five-year plan constituted 19.3 centers per hectare, or 5.3 centners more than the average for this oblast. For expressly this reason, a close scrutiny is being given to the quality of work as one of the effective reserves for increasing the gross grain harvest. There are 213 departments, 308 brigades and 365 units involved in the competition for the title of group of highly sophisticated agriculture.

There is constant concern about the winter fields. And although last autumn was very stingy with precipitations, the farmers were still able to plant at the optimum time the most productive wheat and rye cultivars on almost 1,052,000 hectares, which is 220,000 hectares more than the mean annual area of crops in the preceding period of the five-year plan.

Aircraft of the agricultural aviation start to fly over the winter crops at sun-up. Concurrently ground-based equipment is used to apply fertilizer. By means of this combined method, all of the fields in Podtelkovskiy, Novoanninskiy and Mikhaylovskiy rayons were fed within the very shortest time. Another reserve for increasing the fertility of the fields was also put into action. The agronomical service of kolkhozes and sovkhozes sends a significant amount of phosphorus-containing fertilizers to feed the spring fields. They are applied in the rows together with the seeds.

The team of each farm has begun spring work on a profoundly substantiated program, which includes an extensive range of measures to increase the yield from the grain crop fields. A total of 1,200,000 mechanized complexes worked on fulfilling this program. The operation of each of them is determined on a linear schedule, which clearly reflects the continuity of the technological process, specifies the time for specific operations. Wherever one goes today, one hears the statement that progressive organization of labor results in more productive operation of equipment.

At the present time, the machine operators work around the clock in the fields. None leaves the strips before completing his assignment. This is graphically indicated by the red flags that are raised in the farms and villages in honor of the leaders in the competition. Early spring crops were planted on a very tight schedule at farms in Kotel'nikovskiy, Chernyshovskiy, Kalachevskiy, Gorodishchenskiy and several other rayons.

When the sowing machines leave the fields, units go out that have to roll down the planted areas. Mass scale use of this agrotechnological procedure will aid in increasing the harvest. The farmers of Volgogradskaya Oblast are striving to make use of all possible resources to obtain the largest harvest and to fulfill the obligations they have assumed.
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MAJOR CROP PROGRESS AND WEATHER REPORTING

RICE CROP PROGRESS IN KHERSONSKAYA AND KRYMSKAYA OBLASTS

Moscow SEL'SKAYA ZHIZN' in Russian 9 May 80 p 1

[Article by A. Soldatskiy (correspondent of SEL'SKAYA ZHIZN'), Krymskaya and Khersonskaya oblasts: "Using All Means"]

[Text] One has to perform 7-10 preliminary operations to prepare the soil before planting rice. They are usually done in advance, on the basis of available means.

"But today, when a large volume of work has converged in the fields at the same time, the requirements are different," states V. A. Sikorskiy, director of the "50th Anniversary of the October Revolution" sovkhoz in Krymskaya Oblast. "Machine operators from industrial enterprises and construction organizations have come to help the sovkhoz. They arrived with their own equipment and they are providing much assistance."

At present, the farm has to plant 900 hectares of rice. And the spring has given us very little time to do this. For this reason, field work does not stop as long as there is daylight. Aviation is used extensively for applying mineral fertilizers, and there are nine fertilizer dispensing machines ["sowers"] engaged in the same operation. They are followed by tractors with cultivators, disk harrows, ring rollers and other equipment.

The machine operators dealing with soil planning provide for the sowing pace. In order to distribute the seeds uniformly in the field and plant them no more than 2 cm deep, the sowing machines are operated by the most experienced operators, V. Velichko and I. Khishchenko. On the day that I visited the sovkhoz, they were working on the paddies of irrigator O. Romanyuk. Stopping the tractor, she gathered a bucket of rice from the sower and carefully sowed the corners, then the strips along the drums of the irrigators and run-offs that the sowing machines cannot reach.

I had occasion to visit rice fields of this sovkhoz previously. They were always neat and kept up. But now, each paddy has been prepared with particular thoroughness. The quality of soil cultivation was attributable to the use of beet ring rollers. Tractor operator G. Gurnak laid furrows across and over the perimeter of the paddies, straight as a line, for uniform flooding of the paddies and run-off.

An enormous amount of equipment is presently concentrated on the rice fields of Crimea. For example, there are over 260 tractors at work at the Pyatiozernyy sovkhoz, where 3000 hectares will be covered with this valuable crop.

Work is harmonious at the "Road to Communism" sovkhoz and Radyans'ka Ukraina kolkhoz in neighboring Khersonskaya Oblast. There, the rice growers have a particularly large amount of troubles at the present time: they have to revive their former reputation. This oblast owed 65,000 tons of rice to the State under the current five-year plan. Steps are being taken this year to increase the harvest. It is planned to thresh 55 centners of rice per hectare over a total of 10,500 hectares. The farms are better supplied than before with herbicides, fertilizers, and the sowing material is now of high grade. In other words, they have the foundation for reaching their goal. It is now a question of exemplary work by the rice growers themselves.
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MAJOR CROP PROGRESS AND WEATHER REPORTING

ROLE AND IMPORTANCE OF FIELD TECHNOLOGISTS IN OMSKAYA OBLAST

Moscow PRAVDA in Russian 6 May 80 p 1

[Article by V. Kiryasov: "Grain Field Technologists"]

> [Text] To furnish the state with 1.73 million tons of grain -- such is the obligation of the farmers in Omskaya Oblast. In the campaign to achieve high yields during the final year of the five-year plan, a special role will be played by the rural specialists -- technologists of the fields and champions of all new and leading developments.

At the field camps of the virgin land Tsvetochnyy Sovkhoz, the tractors, sowing machines and cultivators are standing in a line. All have been prepared for the field operations. The chief agronomist, M. Malinovskiy, is very calm. An experienced farmer, he has been in charge of the field husbandry operations at the farm for many years and he has aided the grain growers in obtaining high yields. This year the collective has undertaken the task of obtaining no less than 20 quintals of grain from each hectare and over-fulfilling the plan to a considerable degree. The base required for this has been created. In conformity with the local conditions and aided by scientists from the Siberian Scientific Research Institute of Agriculture, M. Malinovskiy developed and introduced an effective complex of agricultural measures. It is based upon progressive methods for tilling the land and for carrying out crop rotation plans. The complex proved its worth in the steppe zone; it is a great aid in combating wind erosion and weediness of fields and it promotes improved soil fertility.

In short, a great deal has been accomplished towards creating a foundation for the harvest. But an agronomist is aware that even the slightest error made in the spring can have a very fatal effect on the final results of the work performed by grain growers. Thus, M. Malinovskiy requires the field team leaders and machine operators to develop correct sowing tactics. Here a great deal must be taken into account. The norms for seed expenditures, the seed planting schedules, the methods for combating weeds and the structure of the plantings. Based upon the initiative of the agronomist, the board of directors and the party committee are defining more precisely the work plans for the harvest campaign and they are already proceeding with their practical implementation. The plans call for the sowing work to be carried out during the best periods and within 8-10 calendar days.

The majority of agronomists in Omskaya Oblast are displaying concern for the fields and the harvest. Today they are confronted by a great amount of work. Indeed, the volume of spring work is especially great owing to the fact that the past autumn was marked by very inclement weather. Straw must be gathered up and the principal soil tilling work carried out on large areas. The steppe expanses resound with the rumbling of motors.

The rural specialists are participating actively in the work of creating and strengthening the material-technical base for farming and improving the organization of labor.

An agronomist must be able to analyze, think and seek out new developments. Each day and each hour. Those who do not do this, inevitably fall behind. This is what occurred, for example, on a number of farms in Okoneshnikovskiy, Poltavskiy and some other rayons, where the primary party organizations concerned themselves very little with the task of raising the creative activity of the specialists. Here the readiness of the farms to carry out their sowing work leaves a great deal to be desired.

In order to solve successfully the tasks associated with increased yields from the land in Omskaya Oblast, a greater role will have to be played by the rural specialists -- field technologists and tutors of the farmers.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

SPRING FIELD OPERATIONS IN TUL'SKAYA OBLAST REVIEWED

Moscow IZVESTIYA in Russian 6 May 80 p 1

[Article by A. Koptsov (Tula): "Along a Broad Front"]

[Text] During these May days, the Tula farmers are somewhat elated: the winter grains and perennial grasses endured the winter well, the soil which did not freeze during the autumn or winter has absorbed the thaw waters and warm rains have moistened the crops. All signs point to a fine harvest. And there is a good basis for this. The winter crop fields were expanded by 46,000 hectares, fall plowing was carried out completely and 30,000 more tons of organic fertilizer were applied to the fields than was the case last year. A great amount of work was carried out in connection with training the cadres of machine operators, processing the seed and repairing the equipment. The possibility exists of the heavy tractors being operated in two shifts.

This spring, with the warm weather arriving very late, special importance is being attached to carrying out the complex of field operations as quickly as possible: the soil is "suitable" on all fields at the present time and all crops -- grains, potatoes, beets and even corn -- should be sown simultaneously. Approximately 490 mechanized detachments, organized on the basis of the Ipatovo method, have moved out onto the fields. They include more than 4,000 teams, responsible for carrying out various tasks: applying fertilizers, harrowing, cultivation, sowing and providing technical support for the equipment and cultural-domestic services for those participating in the sowing work. Measures for issuing moral and material incentives to the farmers were established depending upon the work schedules and quality. The teams responsible for the technical servicing of equipment were supplied with 243 auto repair workshops, 147 technical maintenance units and 953 welding units.

The kolkhoz members and sovkhoz workers in Yefremovskiy Rayon resolved to sow spring grain crops on more than 52,000 hectares, to apply nitrophoska or granulated superphosphate to the rows simultaneously with the seed, to pack the soil and to carry out pre-germination harrowing. The plans call for 32 completely mechanized detachments to be moved out onto the fields, for close interaction to be organized among the teams, for moisture retention work to be carried out over a period of 4 days and for the cultivation and sowing of early grain crops to be completed within 7 days.

Improved use of the powerful T-150 and K-700 tractors will aid the oblast's machine operators in reducing the schedules for the carrying out of their spring work. Three hundred and ninety five soil cultivation and 953 wide-cut sowing units, consisting of 3-5 cultivators or sowing machines, have been established on the farms. Use is being made of coupled potato planters. Along the edges of the fields there were mechanized grain seed loaders and gasoline trucks. This year, concern is being displayed on many farms for both the feed and the grain. The perennial grass growing areas have been expanded by 23,000 hectares. The plans call for root improvements to be carried out on 9,000 hectares of natural meadows and pastures and surface improvements on 30,000 hectares. In addition, 21,500 hectares of irrigated haying land are to be created.

During the past few years, five interfarm feed procurement enterprises have been organized in the oblast. And they have proved their worth. Last year, for example, the Suvorov Poyma Association procured 4,070 tons of haylage, 41,200 tons of silage bulk and 1,380 tons of grass meal, or 10,069 tons of feed units. At the present time, the workers attached to associations and enterprises are applying a top dressing to the meadows.

The weather is favoring the sowing work. All of the rayons have commenced their field operations. Beginning with the very first day, each good hour of time has been valued highly on the leading farms. The farmers are devoting a great amount of effort towards ensuring that high yields are obtained during the final year of the five-year plan and that the required supply of feed is created for public animal husbandry.

7026
CSO: 1824

MAJOR CROP PROGRESS AND WEATHER REPORTING

PEST, BLIGHT FORECAST FOR KIRGIZ SSR

Frunze SEL'SKOYE KHOZYAYSTVO KIRGIZII in Russian No 4, Apr 80 pp 28-29

[Article by N. Saipagarov, chief of Administration for Protection of Plants of Ministry of Agriculture for Kirgiz SSR and I. Smolich, head of republic laboratory for forecasts and diagnosis: "Forecast for Spread of Pests and Diseases"]

[Text] This year the greatest harm will be caused by locusts, the cotton-ball worm, spider mite, lesser apple-worm, sugar-beet root rot, grain crop bunt diseases and others.

Locusts. The favorable ecological conditions which developed throughout the republic during the past 10 years have promoted a sharp rise in the number of locusts and an increase in the areas colonized by them in Narynskaya, Oshskaya, Issyk-Kul'skaya oblasts and in the Chu River Valley (Panfilovskiy Rayon and the Susamyr River Valley). For the purpose of combating the locusts, the plans for 1980 call for the treatment of 490,000 hectares of land. The chemical treatment work will be carried out using a 12 percent GKhTsG [hexachlorocyclohexane] dust (10-25 kilograms per hectare), 16 percent gamma-isomer of GKhTsG -- 2.5 kilograms per hectare, 20 percent e.k. of metaphos (0.8-2.0 kilograms per hectare), 40 percent e.k. of malathion insecticide (1.5-2.0 kilograms per hectare).

Winter moth. On the sprouts of all agricultural crops, a special danger is posed by 1st generation caterpillars and on non-transplanted sugar beets -- 3d generation. According to data obtained during an autumn inspection, older caterpillars entered the wintering period in a well fed state and in numbers of 0.1-5.2 specimens per square meter. For normal wintering and favorable spring conditions, a high number of 1st generation winter moths was possible in the centers of infestation.

The plantings should be treated against the winter moth when the number of caterpillars reaches 1-2 specimens per square meter (only at night) and against the young pests using such preparations as: on cotton and sugar beets -- s.p. chlorophos (1-2.5 kilograms per hectare), 4 percent granulated gamma-isomer of GKhTsG (soil application of 50 kilograms per hectare), 2' percent dust of GKhTsG (soil application of 8 Kilograms per hectare); on tobacco plantings -- 12 percent dust of GKhTsG (20-25 kilograms per hectare), 25 percent dust of GKhTsG (6-8 kilograms per hectare). During the egg-laying period and the appearance of the caterpillars, sprinkling is effective.

Wild moth. Following the summer diapause, the flight of the butterflies by zones of the republic was rapid and in low numbers. In 1980, the harm caused by wild moth caterpillars will take place mainly in Issyk-Kul'skaya Oblast, on perennial grass fields. These fields must be treated with 80 percent chlorophos (2.0-2.5 kilograms per hectare), 20 percent e.k. of metaphos (1.5-2.0 kilograms per hectare), 40 percent s.p. bazudine (2.0-2.5 kilograms per hectare). The treatments are carried out only at night.

Boll worm. The prolonged warm autumn of 1979 promoted normal feeding for the fourth generation caterpillars and, as a result, the caterpillars entered the pupation stage in good physical condition. The number of pupae which entered the wintering phase -- 0.6-2 specimens per square meter. Under optimum spring conditions, the first generation will be considerable. Treatments were effective only against the younger caterpillars, using the preparations: dendro-bacillin (2 kilograms per hectare), with the addition of chlorophos (0.3 kilograms per hectare), sevin (0.3 kilograms per hectare) and phosphamide (0.3 kilograms per hectare). The release of trichogramma on three occasions against one generation was effective.

On winter wheat plantings of the Bezostaya and Intensivnaya varieties, powdery mildew will be observed in all areas. In Suzakskiy Rayon of Oshskaya Oblast, winter wheat will be damaged by dwarf bunt. The chemical disinfection of the seed using hexachlorobenzene (2 kilograms per hectare) and spraying of the sprouts using this same preparation (10-15 kilograms per hectare) will be very effective in combating this disease.

The sugar beet root aphid and the beet pest will appear in all areas on sugar beet plantings.

Flea beetles will be observed in all areas. The greatest harm may occur during the dry and warm spring period.

The following preparations will be used for combating the flea beetles and weevils: 16 percent gamma-isomer of GKhTsG (2-2.5 kilograms per hectare), 12 percent dust of GKhTsG (15-20 kilograms per hectare), 40 percent S.P. Bazudine (2.5 kilograms per hectare), 30 percent S.P. metaphos (0.7-1.4 kilograms per hectare).

Spider mite. The greatest activity by the spider mite will occur during the second half of August. The warm autumn period promoted further propagation of the pest. As a result, the spider mite entered the winter in increased numbers. And this may result in a flareup of the pest during warm and dry weather in May and June. The following preparations will be used for combating this pest: dusting with ground sulphur (20-30 kilograms per hectare), spraying 40 percent e.k. phosphamide (0.5-1 kilogram per hectare), 20 percent e.k. keltane (2.0-5.0 kilograms per hectare).

Beet bugs are expected to make an appearance on the sugar beet seed plants. In combating these pests, special attention must be given to carrying out the treatments in a timely manner, using the preparations: 20 percent e.k. metaphos (0.8-2 kilograms per hectare), 40 percent e.k. phosphamide (0.5-1.0 kilograms per hectare), 30 percent e.k. malathion insecticide (1.0-2.0 kilograms per hectare).

Powdery mildew will be observed in all areas on sugar beet plantings and on individual fields -- beet leaf scorch and peronosporosis. In combating these pests, use is made of prophylactic treatments: 80 percent s.p. cuprozane (2.4-3.2 kilograms per hectare), 80 percent s.p. sineb (3.2-4.0 kilograms per hectare) and s.p. sulphur (4-6 kilograms per hectare).

Spider mites and aphids are expected to cause considerable damage to the cotton plants. For combating the complex of suctorial pests on the cotton plants, use will be made of: 30 percent s.p. phozalone (3.0-3.3 kilograms per hectare), 40 percent e.k. phosphamide (0.5-1.0 kilograms per hectare), 25 percent e.k. antio (2.0-2.5 kilograms per hectare), 30 percent e.k. acrecsa (3.0-3.5 kilograms per hectare), 50 percent e.k. thiodane (2.0-2.5 kilograms per hectare), 20 percent e.k. keltane (3.5-5.0 kilograms per hectare).

In 1979, favorable weather conditions promoted a considerable spread of bacterial cotton blight on the cotton plants. Infection remained on the seed and thus special attention had to be given to the high quality chemical disinfection and curing of the seed. Wilt will be observed in all areas this year, especially on varieties of the Tashkent group.

Root rot of seedlings will be recorded in hotbed tobacco plantings in the Talas River Valley: favorable weather conditions may promote the colonization and propagation of the green peach-louse, the treatment for which is 20 percent e.k. metaphos (0.6-1.5 kilograms per hectare).

An increased number of apple worms and fruit mites are expected to appear in the orchards. It is expected that the harm caused by the apple moth, the lackey moth and the leaf roller will reach the 1979 level.

Considerable damage may be caused by scab in Oshskaya Oblast and in the Chu River Valley; powdery mildew, fruit rot, cytosporosis, apple tree canker of pips and Clasterosporium infection of stone fruit crops will be observed in all areas.

For combating a complex of pests, treatment must be started as follows: prior to the flow of sap, using DNOK [dinitroortokrezol; dinitro-o-cresol] (10-20 kilograms per hectare), preparation 30-C (40-100 kilograms per hectare) or nitrafen (30-60 kilograms per hectare). Following opening of the buds -- using the preparations: BIP (2.5-5 grams per 100), 30 percent fozalone (2.0-4.0 kilograms per hectare), chlorophos (2.4-6.0 kilograms per hectare), 40 percent e.k. phosphamide (0.8-4.0 kilograms per hectare).

When carrying out treatments against pests, copper and sulphur should be added to the working solutions for the purpose of combating fruit crop diseases.

Vegetable crops will sustain damage caused by the cabbage moth, cabbage white butterflies and aphids; on onions -- onion flies and thrips; on melon crops -- spider mite and aphids. Peronosporium will appear on onions; on melon crops -- bacteriosis, powdery mildew, fusarium wilt and mosaics; on tomatoes -- mottled leaf and big bud of tomatoes; potatoes in Issyk-Kul'skaya Oblast may sustain considerable damage caused by phytosporium, with ring rot, black stem rot, brown patch and virus diseases also being observed.

For combating vegetable diseases, the seed should be chemically disinfected using the preparations TMTD [tetramethylthiuram disulfide] (8 grams per kilogram) and phentiurama (4 grams per kilogram of seed). For combating pests on vegetable crops, use is made of the biopreparations: entobacterin (2 kilograms per hectare), BIP (2-3 grams per 100), malathion insecticide (0.6-1.2 kilograms per hectare); it is also recommended that trichogrammas be released.

In the case of all crops, when working with toxic chemicals, the "Instruction on Safety Practices During the Storage, transporting and Use of Pesticides in Agriculture" must be observed in a very strict manner.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

BRIEFS

MOSCOW OBLAST SOWING OPERATIONS--The farmers in the capital oblast have commenced their sowing work in a harmonious manner. On 28 April, the sowing machines moved out onto the fields in all of the souther rayons of Moscow Oblast. This year the plans call for spring grain crops to be sown on approximately 200,000 hectares of land. The late spring has brought about changes in the farm plans. For the work to be carried out during the best agrotechnical periods, the farmers operate their units on a double-shift basis and they must organize efficient technical servicing for them. The Moscow Oblast machine operators are receiving assistance in this regard from their patrons -- workers of industrial enterprises. Representatives of plants, factories, construction projects and so forth, all of whom have mastered the profession of tractor operator, are working on the farms. The city residents have been assigned to repair and field crop husbandry brigades. Traditionally, the kolkhozes and sovkhozes in Serebryano-Prudskiy Rayon are among the first to commence the sowing work. Here the sowing schedules were re-examined and the decision was made to complete the sowing work in just 45 hours instead of the planned 55 hours. Twelve sowing complexes are operating out on the rayon's fields. The kolkhozes and sovkhozes in Moscow Oblast have resolved to obtain 30 quintals of grain per hectare during the final year of the five-year plan. A firm foundation has already been established for such a high yield -- a large quantity of fertilizer has been moved out onto the fields and a top dressing has been applied successfully to the winter grain crops. A new variety of spring wheat -- Moskovskaya-35 -- has been added to the oblast's fields. It is distinguished by its simple nature, resistance against drought and diseases and by one important factor -- in terms of cropping power, it is not inferior to the best winter varieties -- Moskovskaya-35 furnishes 60 or more quintals of grain per hectare. [Text] [Moscow SOVETSKAYA ROSSIYA in Russian 29 Apr 80 p 1] 7026

ACCELERATED WORK SCHEDULES--Saratov--This spring the oblast's farmers must sow their early and late crops simultaneously. The tremendous scale of the spring crop fields -- 5 million hectares -- is forcing the machine operators to carry out their field work on the basis of accelerated schedules. The workers assigned to Volga region kolkhozes and sovkhozes have begun carrying out their work under the slogan "100 hectares daily for each unit." [Text] [Moscow GUDOK in Russian 6 May 80 p 1] 7026

MASS SOWING OF RICE--Alma-Ata--The mass sowing of rice has commenced in the virgin land Akdalinskaya Steppe region, which is being converted into the northernmost zone of commodity rice production. For the very first time, more than 10,000 hectares of newly developed land have been made available for rice plantation use. All of the sowing units in all areas have been converted over to double-shift work schedules. The check plots are being filled up with water immediately following maintenance work on the sowing machines. [Text] [Moscow GUDOK in Russian 6 May 80 p 1] 7026

HIGH SOWING RATES--Tambov--Notwithstanding the delayed spring conditions, the oblast's farms are characterized by a high level of organization and efficient operations along the entire sowing conveyer line. This year the tempo of the sowing work is two times higher than last year. The kolkhozes and sovkhozes in the southern rayons -- Zherdevskiy, Muchkapskiy and Tokarevskiy -- have already completed their sowing of early grain crops. They completed it in just 50-60 working hours. The sowing tempo in other rayons is increasing. More than 80 percent of the areas set aside for grain crops in the oblast have already been sown. This work has been carried out in all areas with a simultaneous application of mineral fertilizer in the drill rows. [Text] [Moscow GUDOK in Russian 6 May 80 p 1] 7026

CORN SOWING OPERATIONS--Stavropol'--Yesterday the machine operators in Stavropol'skiy Kray commenced their mass sowing of corn, combined with a soil dressing of fertilizers and anti-weed herbicides. They must plant the seed for this crop on a vast area of more than 400,000 hectares. Under conditions involving the delayed warming up of the arable land, the operators of tractor units which have already been used for sowing spring grains and early annual grasses are following a condensed work schedule. [Text] [Moscow GUDOK in Russian 6 May 80 p 1] 7026

SOWING UPDATE--Saratov--This spring, the farmers of this oblast have to plant early and late crops at the same time. The enormous size of the spring crop fields, 5 million hectares, are compelling the machine operators to work in the fields on a tighter schedule. In order to cope with the field work at the optimum time, the farmers are using wide-sweep--15 m--units converted to hydraulic operation hitched to harrows, cultivators, sowers and rollers. At the present time, there are already more than 2000 such "fast" units on the fields of the Saratov region. The farmers are completing spring crop planting on the first million hectares. [Text] [Moscow SOVETSKAYA ROSSIYA in Russian 6 May 80 p 1] 10,657

RICE SOWING UPDATE--Vladivostok--Specialized sovkhozes in Primor'ye have begun mass scale planting of rice. This is proceeding chiefly on the new paddies in farms of the Prikhankayskaya plain. The developers ["ameliorators"] of the All-Union Komsomol shock construction team, who are creating a major rice-growing area in the southern part of the Far East, delivered these new paddies at the start of the season. In all, 44,000 hectares of irrigated fields will have to be planted. Sowing complexes have been created at all of the rice-growing sovkhozes. Leading machine operators from cities in this kray have come to help.

Primor'ye has decided to deliver to the nation a record amount of grain, at least 85,000 tons, in the last year of the current five-year plan. [Text] [Moscow SOVETSKAYA ROSSIYA in Russian 6 May 80 p 1] 10,657

SOWING GOALS IN KIROVSKAYA OBLAST--Kirov--The farms in virtually all regions of Kirovskaya Oblast have begun mass scale spring work. More than 700 complexes are working in the fields, including 2000 mechanized units. Repair personnel are available at any time. The farmers are taking an important test: to complete sowing within 10 days, in spite of the late spring, and to finish all field work within the agrotechnologically optimum time. [Text] [Moscow SOVETSKAYA ROSSIYA in Russian 6 May 80 p 1] 10,657

REPORT FROM KUBAN'--Krasnodar, 6 May (TASS)--Sowing work is in progress in Kuban' at an accelerated pace. The late and rainy spring has shortened to a minimum the time within which sowing must be done on the spring crop fields. Hundreds of sowing machine crews are today planting sunflowers, corn, rice and vegetables. All of the equipment is being used in a complex manner, in two shifts, for planting and cultivation. This spring has a unique feature. Following the example of the Moldavian farmers, progressive industrial technology is being used extensively at all of the farms for raising sunflowers, corn and sugar beets. For the first time, soybeans are being grown by a new method on 10,000 hectares of land in Krasnodarskiy Kray. This high-protein crop is being planted in 20 rural regions, more than 60 kolkhozes and sovkhozes. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 7 May 80 p 1] 10,657

CROPS ON FORMER SALT FLATS--Alma Ata, 7 May (TASS)--The farmers of Dzhezkazganskaya, Karagandinskaya and Tselinogradskaya oblasts have started mass sowing of early grain crops and perennial grasses on former salt flats ["solonets"--salt lake?]. The Tselinnyy imeni 25th CPSU Congress, imeni Kirov sovkhozes and dozens of other farms have planted more than a thousand additional hectares. More than 800,000 hectares of land have been added in crop rotation as a result of reclamation of Kazakhstan salt flats since the start of the current five-year plan, a third of this area this year. The sterile, salt land is becoming generous, provided it is in the care of competent farmers' hands. Specialized detachments of Goskomsel'khoztekhnika are laying a firm foundation for the harvest: they are treating the virgin lands with phosphogypsum. The scientists have recommended a special agrotechnology for the salt flats, with early sowing following spring cultivation. In this case, the seedlings appear in moist soil before a crust is formed on the ground, which is so typical of salt flats. The harvest is on a stable high level in the newly developed areas. The experience of progressive farms gives us confidence in the potential of developing the salt flats. The scientists at the Institute of Soil Science of this republic's academy of sciences have prepared recommendations on developing 10 million hectares of virgin land in the next 10 years. Enterprises in the Karatau-Dzhambul region have assumed the task of supplying a valuble product for salt lands, i.e., phosphogypsum. In the near future, they will bring annual production of phosphogypsum up to 250,000 tons. The salt flats are becoming an important reserve for increasing the production of grain and feed for the livestock industry. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 8 May 80 p 1] 10,657

BEATING THE WEATHER--Khabarovsk, 5 May, article by Yu. Baklanov, correspondent of SEL'SKAYA ZHIZN'--The farmers at several farms in Oktyabr'skiy and Leninskiy rayons have completed sowing of grain crops at the agrotechnologically optimum time. They counteracted the bad weather with skill, good organization of labor in sowing complexes and units. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 6 May 80 p 1] 10,657

CORN-RAISING UPDATE--Stavropol'--Mass scale sowing of corn, with application of fertilizers and extermination of weeds with herbicides was deployed yesterday by the machine operators of Stavropol'. They have to plant seeds of this crop over an extensive area of more than 400,000 hectares. With the late warming of the fields, the operators of tractor units are working on a tight schedule, and they have already planted spring grain crops and early annual grasses. [Text] [Moscow SOVETSKAYA ROSSIYA in Russian 6 May 80 p 1] 10,657

CSO: 1824

LIVESTOCK FEED PROCUREMENT

LIVESTOCK, FEED SITUATION IN CHUVASH ASSR

Moscow PRAVDA in Russian 5 Apr 80 p 2

[Article by G. Ivanov interviewing the first secretary of the Chuvash CPSU obkom, I. Prokop'yev: "Although the Burden is a Difficult One"]

[Text] In his speech at the November 1979 Plenum of the CPSU Central Committee, Comrade L. I. Brezhnev said that securing uninterrupted supplies of high-quality foodstuffs in sufficient quantities and in a large assortment is one of the most important goals arising from the party's course to raise the well-being of workers. The Chuvashskaya ASSR has good conditions at its disposal for the production of meat, milk and other products. The availability of meadows and pastures, the possiblity of producing stable harvests of feed crops enable the republic to successfully develop livestock farming. Enterprises give preference to this branch, having put a large portion of allocated resources into it. However, it still has not been possible to achieve a sufficiently effective return on them. What kinds of measures are being taken by the party and economic organs in the republic in order to correct the situation in the branch? Today the first secretary of the Chuvash CPSU obkom, I. Prokop'yev, answers the questions of PRAVDA correspondent G. Ivanov.

[Question] How can we evaluate the status of livestock farming today?

[Answer] The subject under discussion is not an easy one. Great lags have been tolerated. Last year turned out to be a difficult one and it has not yet been possible to correct the situation. The directors of enterprises and even party workers complain about the excessive intensity of goals when there are discussions about the reasons for the lags. It is said that an unbearable burden is placed on their shoulders and that is why the work remains uncompleted.

I cannot agree with such statements. Although the plans in enterprises are in fact intensive, it would be incorrect to view them as unbearable. Today we produce 90 quintals of meat and 260 quintals of milk on 100 hectares. But until 1965 we produced one-third this amount. Progress has been made, and as we see it has been rather significant. But it is not sufficient if we consider the resources that enterprises have at their disposal. Let us examine some average indicators. There are kolkhozes and sovkhozes and even entire rayons which have worked much better than this. This includes Cheboksarskiy, Morgaushskiy and Shumerlinskiy and a number of others where the goals for the 4 years of the five-year plan on the production and procurement of livestock and poultry were successfully met.

The indicators of leading workers also speak of the great possibilities.

Herdsmen N. Aleksandrov and N. Vladimirov of the Druzhba Kolkhoz, Vurnarskiy Rayon, achieve a daily weight gain of 1,130 grams from each animal when fattening cattle. This is over two times greater than the average republic level. Many of our milkmaids achieve good results. Five thousands and more liters of milk per cow are produced annually by such master workers as L. Lukina of the Kolkhoz imeni Timiryazev of Yadrinskiy Rayon, M. Afanderova, N. Alekseyeva and N. Mikhaylova of the Cheboksary Poultry Factory and others. This is over double the republic average. In other words, the resources are large. If the lagging collectives improved to the level of average enterprises and not to that of leading enterprises, this would result in a weighty increase of almost 20,000 tons of milk annually.

[Question] But meanwhile the number of lagging enterprises is growing. They are not simply slowing their pace of development but actually losing their positions. What is wrong?

[Answer] Unfortunately, this is true. Last year and the year before last milk production, for example, dropped in the republic. How can this be explained? For the sake of justice we should note that some difficulties arose in connection with the unfavorable weather conditions. But leading enterprises turned out to be stable even under difficult conditions. I feel that the reasons have to do with something else.

Since the beginning the the five-year plan there were over double the capital investments made for the development of dairy farming than for the same preceding period. The return is still not sufficient, however. In recent years the network of complexes has begun to grow, and there are already 29 in operation. As a rule, they are better supplied with technology and equipment than regular farms. Nevertheless, their capacities are being assimilated slowly and only some complexes produce over 3,000 kilograms of milk per cow. Thus, the role of such enterprises is still insignificant. They produce only 11 percent of total milk yield.

[Question] This means that the basic load is carried by regular farms?

[Answer] This will be true at least for the next few years. And we still have many problems, difficulties and errors which simply hold back milk production. Under conditions in our republic the cows of the Black-Spotted breed have thrived. In the Yaushskaya and other farms of the Sad production firm each such cow produces 5,000-5,500 kilograms of milk annually. Nevertheless, the proportion of Black-Spotted cows in the herd is not large--only 17.5 percent. In addition, the breed is so widely dispersed among enterprises that it is difficult to create breeding farms and Rosplemob"yedineniye [All-Russian Breeding Association] fulfills orders extremely unsatisfactorily--instead of 7,000-8,000 head of Black-Spotted cattle they allocate no more than 1,000 annually. Kolkhozes and sovkhozes frequently buy animals riskily--the animals do not have a classification and are low in productive qualities. Of course this is not normal. We are counting on serious aid on the part of the RSFSR Ministry of Agriculture and Rosplemob"yedineniye. At the same time we must admit that our own republic agricultural organs are at fault in the low level of management of breeding. Barrenness in cows is great and as a result there is an underproduction of 17,000-18,000 calves annually. Measures have now been taken to improve the situation.

[Question] We know that the question of questions is feed. How is this problem being solved?

[Answer] Our kolkhozes and sovkhozes annually procure 65-70 percent of the needed feed. The problem is that in many enterprises the productivity of forage crops is low. For example, 100-150 quintals of green mass and about 25 quintals of hay are harvested per hectare. Early last year the feed problem was discussed seriously at the plenum of the party obkom. The course taken was the development of an independent forage branch. Some experience has already been collected. The collective of the Leninskaya Iskra Kolkhoz stepped in with a valuable initiative. Here a detachment on feed production was created and it proved that it was possible to produce 32-35 quintals of feed units per standard head of cattle. The initiators called upon the feed-producing brigade of the Yangorchino Kolkhoz for competition. This initiative has already been supported by many enterprises. In the spring the area in pulse and silage crops and root crops was expanded greatly. However, the drought in May and June hindered the development of plants and the yield turned out to be small. In other words, the feed problem will remain a priority in the future.

[Question] Livestock farming is called a nation-wide matter.

[Answer] Yes, sponsors of organizations are rendering a great deal of aid to enterprises, especially during the period of feed procurement and harvesting operations. Village workers are grateful to them for this. But kolkhozes and sovkhozes also have partners who are called upon to help not only as a token of friendship, but because they must.

What actually happens? In the last 4 years reclamation workers did not put 6,300 hectares of cultivated pastures and haylands, 1,600 hectares of drained lands into operation. Another great underproducer is the Chuvashskoye Territorial Administration, whose builders have tolerated significant lags in the introduction into operation of many agricultural structures. Moreover, many of these structures are submitted with incompletions, which holds back the assimilation of capacities. There are still many complaints about designers. In 8 years the cost of one livestock place doubled. It is therefore not surprising that animal husbandry incurs losses.

The relationship between enterprises and Goskomsel'khoztekhnika [State Committee of the Agricultural Equipment Association] has not been organized. Large quantities of fertilizer are delivered to farms, but because of the poor organization of servicing it machines frequently operate with interruptions. I feel that a single engineering-technical service should be created in the village. Material incentives should depend exclusively on the products produced by agriculture.

[Question] Of course all of this is important. The relationship between the village and its partners must be improved. But are there internal resources in enterprises?

[Answer] Without doubt. A key factor is the level of training of cadres, their initiative. It is true that in contrast to other rayons in the country our republic is not experiencing an acute shortage of workers in the village. There are 27,500 persons working in animal husbandry, and this is a sufficient number. Our goal is to constantly improve their training, to improve the conditions of labor and to persistently introduce technology. We must admit that there are still many incomplete areas here. The level of farm mechanization is almost half the average in the RSFSR. In many enterprises the proper concern is not always shown for improving cultural and everyday conditions for livestock farmers. There are rayons where not a single children's facility has yet been built.

The level of work with cadres does not fully correspond to growing tasks. Individual party raykoms do not always thoroughly study the business-like and political qualities of workers and deal poorly with resources. The Alatyrskiy, Komsomol'skiy, Morgaushskiy and Yal'chikskiy CPSU raykoms were subject to criticism at the obkom plenum for serious shortcomings in the selection and training of enterprise directors. There have been cases in which the desire to look better pushed some of our workers in positions of responsibility to make additions and to distort accounts. It was necessary to take strict measures, including exclusion from the party.

Sometimes it happens that the raykom makes useful decisions, but it is not possible to implement them.

[Question] There is no question that in order to deal with the plans and obligations successfully, village workers must solve difficult problems. What are the prospects for the development of the branch?

[Answer] Recently there was a meeting of the party-economic aktiv of the republic. The discussion about the situation in agriculture was exacting and demanding. Its participants spoke about the great possibilities and resources that still have not been utilized. Special attention was given to the development of the forage base. Village workers calculate that they will produce no fewer than 300 quintals of green mass of corn, 350 quintals of root crops and 30 quintals of hay from perennial crops per hectare. Such harvests will enable livestock farmers to increase the gross production of meat by no less than 13,500 tons this year as compared to last, and to increase milk yield from cows by 150 kilograms per cow.

The overwintering of livestock is continuing in enterprises. This is a serious test for party, soviet, and agricultural organs and for all village communists. Feeds are being strictly accounted for, consumption has been determined and the efficient utilization of forage has been organized. No matter how difficult the test, village workers intend to pass it successfully, remembering that an increase in production output on farms depends primarily on the conscientious attitude toward work and on the skilful use of resources.

8228
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LIVESTOCK FEED PROCUREMENT

FEED SITUATION DISCUSSED IN LENINGRAD AKTIV

Leningrad LENINGRADSKAYA PRAVDA in Russian 5 Apr 80 p 1

[Article: "Strengthening the Feed Base of Public Animal Husbandry"]

[Text] Yesterday at the House of Political Education of the CPSU obkom an aktiv meeting was held of all party, soviet, trade union and komsomol organizations jointly with the directors of agricultural enterprises and institutions of Leningrad Oblast. The topic under discussion was the goals for continued intensification of feed production in the light of the requirements of the resolution of the CPSU Central Committee and the USSR Council of Ministers, "On Supplementary Measures to Increase the Production of Coarse and Succulent Feeds in 1980 and to Improve their Quality."

A speech was made by the deputy chairman of the ispolkom of the Leningrad Oblast soviet, V. A. Goryashin.

At the conference great emphasis was placed on the March 1965 Plenum of the CPSU Central Committee, whose decisions were based on an overall analysis of the situation and which clearly determined the ways and means of achieving the planned goals. It was during the realization of the requirements of this document that there was a firm confirmation of the most characteristic features of party managment of agriculture such as a strict scientific approach to the rules for developing the production power of the village, the orientation toward an intensive management method, the complex solution of economic and social problems, the improvement of management, and an improvement in the effectiveness and quality of work. Important stages in the realization of the agrarian policies of the CPSU were reached with the party congresses and the plenums of the CPSU Central Committee, particularly the one in July 1978.

The participants in the conference noted the exceptional services in developing a scientifically-based program on the consistent development of agriculture by the General Secretary of the CPSU Central Committee and Chairman of the Presidium of the USSR Supreme Soviet, Comrade L. I. Brezhnev. They spoke about the fact that Leningrad workers, like all Soviet people, were very happy to see Leonid Il'ich Brezhnev receive the Lenin Prize for his excellent triology. Leonid Il'ich's speech at the ceremonial meeting in

Moscow was greeted everywhere as a battle program of action, as an inspiring call to fulfill the goals established by the party.

The huge scale of work to transform agriculture that has been completed since the March 1965 Plenum of the CPSU Central Committee is clearly evident in our oblast. Thanks to the constant attention and help of the party's central committee the active transformation of the branch into a highly developed sector of the socialist economy was begun.

During these years 3.5 billion rubles of capital investments were directed at the development of the material-technical base of the Leningrad agro-industrial complex. There has been a significant growth in the delivery of mineral and organic fertilizers, technology and equipment. The annual volume of agricultural reclamation operations has almost tripled. Gross production of the public sector surpassed the 1964 level by 2.6 times; labor productivity--by 2.7 times.

The main result of the work of Leningrad workers toward the fulfillment of the decisions of the March 1965 Plenum of the CPSU Central Committee was the significant growth in the intraoblast production of agricultural products. During this period state procurement of poultry products increased eightfold, of milk--almost threefold, meat--2.7 times, and vegetables--by 79 percent.

The participants of the conference discussed one of the key factors that will affect the fulfillment of plans and socialist obligations for 1980 and for the five-year plan as a whole on the production and sale to the state of livestock products. The discussion was about the radical improvement of feed production, as required by the party's central committee, about creating a stable feed base for public animal husbandry in each enterprise in the near future.

The resolution of the CPSU Central Committee and the USSR Council of Ministers once again directs the attention of party, soviet and agricultural organs to the fact that a shortage of coarse and succulent feeds is one of the main reasons for low productivity in animal husbandry and for the overconsumption of grain. In the future this cannot be tolerated.

Village workers have a specific and immediate goal--to utilize all reserves in order to significantly accumulate reserves of hay, haylage, silage and root crops. Additional technology and materials are being distributed for this purpose, privileges are granted for work credit and for stimulating the work of feed procurement.

Last year the bureau of the CPSU obkom examined the proposals of agricultural organs and departments of VASKhNIL [All-Union Lenin Academy of Agricultural Sciences] for the Non-Chernozem Zone of the RSFSR regarding the complex development of a feed base and of the mixed-fodder industry of the oblast. The practical realization of this program enabled us already in 1979 to increase the volume of feed procurement by 17 percent. The results are not bad, it was said at the meeting, but they do not fully correspond to the possibilities that exist in the Leningrad fields and most importantly they by far do not meet the needs of the growing herd. This is why it is important now to secure these results and then to surpass them.

Leningrad obligations foresee increasing the feed procurement volume of enterprises to 800,000 tons of feed units. In other words, the level that has been achieved must be surpassed by 30 percent. The goal is not a simple one and in order to reach it it is essential to produce large yields of feed crops, to preserve them and to effectively utilize each kilogram of hay, haylage, silage and root crops.

The first serious test in connection with this will take place during spring sowing. It was emphasized at the meeting that all of the possibilities exist for improving the structure of sowing fields, for increasing the proportion of high-yield crops and for allocating the best land for them prior to the beginning of field operations. The entire complex of questions that determine the yield for the final year of the five-year plan should be taken under strict party control.

The participants in the meeting said that one subject of special concern should be the daily, time-consuming work with cadres to whom feed production has been entrusted. Under conditions of thorough specialization one of the decisive factors in raising effectiveness, in addition to strengthening the material-technical base, is the high professional level of specialists and workers, their skill in widely utilizing the achievements of science and progressive practice.

It was noted that a special role in these questions belongs to agricultural associations, primarily to head sovkhozes, which mirror the status of economic activities as well as of political and organizational work in the collective. Party committees and secretariat councils have a great deal of responsibility. Coordinated and harmonious work by all participants in the feed conveyor will depend on their active positions.

There was a discussion about the fact that within the complex of measures on the development of feed production a central place is given to mechanized cadres. As a result of the measures that have been taken in the last few years it has been possible in principle to solve the problem of supplying the majority of sovkhozes in the oblast with first-class cadres. Last year alone over 3,000 people were trained in the use of new and modern technology. The participants of the meeting noted that success will depend on what conditions will be created at the job for the highly productive labor of machine operators. We must follow the tried and tested route of creating large mechanized links which operate according to the principles of cost-accounting and which are fully responsible for the final results of labor, for the cultivated and preserved harvest.

We cannot tolerate a situation which sometimes exists in which because of anonimity the fundamental factors of a high degree of effectiveness--the quality of plowing work, sowing, crop care and finally of harvesting--are lost. The machinist, as the leading figure in modern agricultural production, must receive a full restoration of rights as the manager of the land. Everything to the slightest details must be foreseen--the conditions for wage payments that encourage quality and the utilization of progressive technology, dependable material-technical services.

In our oblast the Ipatov method of labor organization is widely utilized. It is on its basis that good results have been achieved in the use of feed procurement machinery in Luzhskiy and Kingiseppskiy rayons.

Reclamation organizations must play a more active role in raising the productivity of feed crops. The resources of our reclamation fund have by far not been used up. It is necessary to determine the order in which to assimilate lands according to an economic basis. Most important, the reconstruction of agricultural lands must be managed on a larger scale.

At the present time over 130 cost-accounting specialized subdivisions for feed production are being formed in the oblast's enterprises. Already this year they must make themselves known and bring a total change to feed production. The organization of their operations requires the constant attention of party, soviet and agricultural organs.

Party and trade union organizations must widely begin socialist competition to achieve the highest indicators by each link, detachment and association. The effect of competition will be greater the more flexible the system of moral and material incentives, and if each participant knows the results of his labor daily.

As noted at the November 1979 Plenum of the CPSU Central Committee, great losses to animal husbandry are incurred by the low quality of feed and by the rations that are unbalanced in protein. These shortcomings are to a certain degree characteristic of a number of agricultural associations in our oblast.

At the conference it was said that many losses are the result of the insufficient development of the material-technical base of feed production. There can be no skimping with the allocation of resources for this purpose, and the building of facilities for feed production must be viewed as a priority goal of state importance. The collectives of administrative industrial enterprises must provide a great deal of aid to meet this goal.

Party gorkoms and raykoms and local soviets of people's deputies are primarily responsible for creating an atmosphere of great demandingness to fulfill these goals. It was emphasized at the meeting that it is very important now, on the threshold of the 11th Five-Year Plan, to arm village workers with a clear program of action and to coordinate all aspects of the activities of party, soviet and agricultural organs in order to reach the goals that are set.

The results of the first quarter attest to the fact that in widely starting socialist competition in honor of the 110th anniversary of V. I. Lenin's birth, Leningrad workers have made an adequate beginning for fulfilling the established plans and obligations of the final year of the five-year plan. However, the tasks that are before us require that we improve all the activities of party and economic organs. A framework of demandingness and exactingness must be created on all plots and in all links. This will encourage the finding of new resources, an improvement in effectiveness and quality and the strengthening of organization and discipline.

The members of the conference expressed their firm belief that all communists and workers of Leningrad and the oblast, in recognizing their responsibility to implement the agrarian policies of the party, will secure the successful conclusion of the 10th Five-Year Plan and will make a worthy contribution toward preparations for the 26th congress of our Leninist party.

Speaking at the meeting were the first secretary of the Tikhvinskiy gorkom of the CPSU, A. S. Yefimov, the deputy chairman of the presidium of the VASKhNIL department on the RSFSR Non-Chernozem Zone G. V. Blagoveshchenskiy, the director of the mechanized detachment on feed procurement of the Pashskiy Sovkhoz S. A. Anikin, the secretary of the party committee of the Syaglitsy sovkhoz production association I. V. Malyshev and the brigadier assistant of the livestock farm in the Krasnyy Oktyabr' Sovkhoz L. V. Ivanov and others.

G. V. Romanov, member of the Politburo of the CPSU Central Committee and first secretary of the Leningrad Oblast party committee, spoke at the meeting.

Participating in the work of the conference were the secretary of the Leningrad Oblast CPSU committee G. A. Posibeyev and the chairman of the ispolkom of the Leningrad Oblast soviet A. N. Shibalov.

8228
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LIVESTOCK FEED PROCUREMENT

STRAW FOR LIVESTOCK FEED IN THE UKRAINE

[Editorial Report] Kiev PRAVDA UKRAINY in Russian 16 February 1980 p 2 and 10 April 1980 p 2 has urged livestock men there to look to chemically treated straw to augment livestock feed supplies. The first instance is a 1,200-word article by A. Mamenko appearing in mid-February. The author begins by admitting that despite straw's prominent place in the feed balance at many kolkhozes and sovkhozes, it is poor in nutrients, especially protein. The article continues, stating that straw is primarily a ballast feed, necessary for normal food processing and furnishing the proper volume to the ration. The author goes on to mention various modes for preparation of straw for feeding to livestock. The article concentrates its attention on barothermic processing and on details and advantages of this mode. The barothermic method is getting the chance to prove itself in Kiyevskaya Oblast, where certain rayons, especially in the woodland area, laid in less feed than in preceding years due to adverse weather conditions.

While reporting on the details and advantages of feeding barothermically treated straw, the author aims one last admonition at the livestock men:

"Certainly its use in no way relieves enterprise specialists and leaders of the necessity of increasing the feed base for animal husbandry in every way."

A second article appears early in April. This one, an 800-word article by A. Mamenko and N. Korobko stresses the importance of straw in stretching livestock feed supplies.

"At the end of the overwintering period the decrease in feed laid in back in the autumn becomes all the more noticeable. And therefore its well thought out, rational utilization, in particular, the skillful inclusion of straw in the feed ration takes on a special urgency."

The article goes on to give details on various chemical treatments to enrich straw foruse as livestock feed. These two articles represent at least the fourth and fifth occasions on which the use of straw has been recommended for feed. Similar articles appeared from neighboring Belgorodskaya Oblast in February and Krasnodarskiy Kray in December and January.

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LIVESTOCK FEED PROCUREMENT

LIVESTOCK FEED SITUATION IN THE UKRAINE

Kiev SIL'S'KI VISTI in Ukrainian 24 Apr 80 p 1

[Editorial on: "For Farms With Good Supplies"]

[Text] The strengthening of the feed base has always been and remains one of the chief and most important tasks of party organizations, soviet and agricultural organs, and all rural workers. In the CC CPSU and the USSR Council of Ministers decision entitled: "On additional measures to increase coarse and succulent feed in 1980 and raising their quality" particular attention is given to the solution of this task.

Appearing at the April (1980) CC Ukrainian Communist Party Plenum the first secretary of the CC Ukrainian Communist Party, comrade Shcherbyts'kyy, said: "The task lies in the complete fulfillment of all additional measures to increase feed production and raising their quality, to increase feed procurement already this year by not less than a third and to obtain up to 35.3 quintals of feed units per conditional cattle head, to solve the problem of providing for cattle raising needs completely in the next five-year plan."

High indices in feed production are achieved each year by kolkhozes and sovkhozes in the Tul'chynskyy Rayon, Vinnitskaya Oblast, Mar'yinskyy Rayon - Donetskaya Oblast, Krasnogvardeyskyy, Nyzhnogorskyy Rayons - Krymskaya Oblast, Stryyskyy and Kam'yansko-Buzkyy - Lvovskaya Oblast, Izmayilskyy and Ovidiopol'skyy Rayons - Odesskaya Oblast, Bilozerskyy Rayon - Khersonskaya Oblast, Volodymyretskyy - Rovenskaya Oblast, Cherkasskyy Rayon, Cherkasskaya Oblast, Vyzhnytskyy and Zastavnivskyy Rayons, Chernovitskaya Oblast and several others. Their experience in growing abundant feed crop harvests, raising meadow and pasture productivity, and organization of efficient and high quality feed procurement this year should be copied by all.

The late and cool spring made some changes in the working plans of farmers and machine operators, it created some difficulties. Under these circumstances work organization and efficiency are needed.

The field work front is moving gradually to the north of the republic. In the spring period it is essential to conduct timely sowing of forage, silage and other feed crops. However, attention is not given to this matter everywhere. Let us consider perennial grasses, for example. During the last few years feed crop sowing plans are systematically neglected by a number of farms in Volynskaya, Kievskaya, Sumskaya and Khmelnitskaya Oblasts. There is a low 22 to 29 percent specific weight of perennial grasses in the feed crop structure of Voroshilovgradskaya, Krymskaya, Nikolaevskaya, Kharkovskaya and Khersonskaya Oblasts.

Far from all kolkhozes and sovkhozes concern themselves properly with growing annual grasses, corn for silage, and feed root crops. Last year in the sovkhoz "Dzvonkove" in Kievskaya Oblast a low yield was obtained of corn for green chop and silage, in kolkhoz "Avangard", Stavyshchenskyy Rayon in the same oblast there was not enough hay from annual grasses. In the Ternopol' area only 153 quintals of feed root crops were raised, on the average during the last four years not more than 200 quintals are harvested here. Many farms in the Kirovogradskaya and Voroshilovgradskaya Oblasts also obtain low yields in feed root crops and corn for silage.

Experience has shown that the best organizational form in feed production consists of mechanized brigades, detachments or teams provided with essential equipment, fertilizers and herbicides. This allows for personal responsibility in the care of feed crops, high labor productivity, the most effective use of the equipment and assures a high quality work performance.

The task of party, soviet and agricultural organs, and kolkhoz and sovkhoz managers is to introduce progressive methods everywhere, to assure an accelerated tempo and high quality work in the sowing and care of feed crops. Only in these conditions can a good harvest be guaranteed.

Important reserves in supplementing feed supplies are the intensive use of irrigated lands, expansion of repeated sowing and the use of multiple-component pulse-cereal mixtures. Full utilization of these reserves will permit not only an increase in the production of coarse and succulent feed, but will also raise the protein yield from this area.

High quality and timely feed procurement is very important. The Ipatov method should be introduced everywhere with proper beforehand preparation.

In fulfilling the projected measures on increasing the productivity of natural feed lands which take up almost 17 percent of agricultural lands, and in the Volynskaya, Zakarpatskaya, Lvovskaya, Rovenskaya, Chernigovskaya Oblasts 28 to 52 percent, it is very important to accomplish the whole complex of crop-technological work projected to increase the yield of feed units from meadows and pastures.

The growth in the role of the field in feed production along with specialization and agricultural concentration is unequalled. Large animal complexes as well as ordinary farms, interfarm enterprises and associations for the production of beef, pork, milk, eggs, heifer raising should depend on their own feed base. The cattle raising complexes at kolkhozes "Oktyabr" in Mar'yinskyy Rayon, Donetskaya Oblast, "Ukrayina" Gorodotskyy Rayon, Khmelnitskaya Oblast, imeni Ostrovs'kyy, Man'kivskyy Rayon, Cherkasskaya Oblast, Yampil's'kyy interfarm enterprise in the Vinnitskaya Oblast and others may serve as an example of feeding cattle with high quality feed of their own production.

Unfortunately, a number of complexes still feel a shortage of feed. Instead of fully utilizing field feed production reserves, some managers of agricultural organs, kolkhozes and sovkhozes attempt to balance the rations from state resources. In some places this practice instead of a rebuff finds approval.

It should be remembered that the basic source of grain forage production, hay, haylage, silage, other coarse and succulent feed is the field, its harvest possibilities should be utilized fully.

9443
CSO: 1811

LIVESTOCK FEED PROCUREMENT

MUSTARD-FAMILY FEED CROPS DESCRIBED

Minsk SEL'SKAYA GAZETA in Russian 15 Apr 80 p 2

[Article by N. Glovatskiy, chief of the administration for feeds of the BSSR Ministry of Agriculture and V. Shlapunov, deputy director of the Belorussian NIIZ (expansion unknown): "More Plantings of Mustard Family Crops"]

[Text] "...to achieve in 1980 a significant increase in production and improved quality in hay, silage, feed root crops and other feeds." (From the decree by the CPSU Central Committee and the USSR Council of Ministers "Concerning Supplementary Measures for Increasing the Production of Rough and Succulent Feeds in 1980 and for Raising Their Quality.")

The most important condition for further increases in the production of livestock products on the kolkhozes and sovkhozes of the republic has been and remains the creation of a solid feed base. However, the state of feed production on many farms at the present lags significantly behind the requirements of livestock breeding both in the quantity of feeds produced and in their quality. The provision for digestible protein in feeds during the penned period is particularly low. Elimination of the deficit in protein in the cattle feed allowance is therefore a most important task.

During recent years a number of kolkhozes and sovkhozes have been making ever greater use of such resources for intensifying feed production as the cultivation of new feed crops and primarily of mustard, oil-yielding crops, namely, winter and spring rape, oil-yielding radishes and white mustard.

The value of the mustard family of crops lies in the fact that they produce a high yield of green mass under any weather conditions. Moreover, the short period of time between the appearance of the shoots and harvesting maturity makes it possible to harvest several times during the growing period and thus to utilize these crops both for green supplementary feeds from spring until late fall and for preparing silage and grass meal.

In order to provide high harvest yields of these crops in post-mowing and late-summer intermediate plantings, it is already important now to deterthe place and times for growing the crops and the application rates for the organic and mineral fertilizers. This year a maximum amount of oil-yielding radish and spring rape plantings must be utilized to produce seed.

This page briefly discusses the agrotechnology and methods of growing the basic mustard family crops which must become widely disseminated throughout the fields of the republic.

Oil-Yielding Radish

"A crop of great possibilities," is the response on the "Leninist Call" Kolkhoz in Krichevskiy Rayon concerning the oil-yielding radish. This is not the first year it has been grown here, and it is used for green feed, for silage, for preparing grass meal and for feeding. Each hectare planted yields more than 300 quintals of green mass.

The oil-yielding radish is grown on a grain crops farm. Soil preparation before planting is carried out as it is for early spring crops. Two quintals of superphosphate and 1.5 quintals of potassium salt are applied to each hectare. The soil is packed with rollers both before and after planting.

Planting on the kolkhoz is done with a SZT-3.6 seeder at a seeding rate of 20 kilograms per hectare. After planting there is no cultivation during the growing period. The green mass is harvested for feed during the blossoming period. There are two to three cuttings per year.

On the kolkhoz imeni Lenin in Orshanskiy Rayon, oil-producing radishes cover more than 50 hectares. And 450 to 500 quintals of green mass are harvested per hectare. In the "Starovshchina" production section on the kolkhoz "Rossiya" in Shchuchinskiy Rayon even more green mass from the oil-yielding radish is produced, namely, 600 quintals per hectare.

Last year the kolkhoz imeni Uritskiy in Gomel'skiy Rayon grew oil-yielding radishes in after-harvest plantings on 400 hectares of land. They were planted after the grain harvest, namely, winter rye and barley. The harvest yield of green mass for the entire planted area was 250 quintals per hectare. It is typical that green mass from areas planted during the second third of August is fed to livestock in October.

This is a high-protein crop capable of producing 6 to 8 quintals of digestible protein per hectare. In protein content, the oil-yielding radish is not inferior to pulse grasses. There are 12 to 14 feed units per 100 kilograms of it. The green mass from radishes is also rich in mineral nutrients. Phosphorus makes up a significant proportion of the ash elements. There is also a considerable amount of potassium, calcium and nitrogen. The nutritive qualities of the crop are also determined by the presence of microelements in it. It is on a part with other high vitamin plants in its content of vitamin C. It is also rich in carotene.

The oil-yielding radish is a cold-resistant plant. The seed begins to germinate at a temperature of 2 to 3 degrees above zero. Mature plants are harmed by frost only at a temperature lower than -7 degrees. This fast growing plant has a short growing period. The length of time between planting and the appearance of sprouts is 4 to 6 days in the presence of sufficient amounts of moisture and warmth, between the appearance of sprouts and mowing maturity (for a summer planting) is about 50 days and from the appearance of the sprouts until seed maturity (for a spring planting) is about 70 days.

Due to its cold resistance and ability to grow quickly, green mass from the oil-yielding radish is a future feed crop which will make it possible to extend the period of feeding green mass to livestock in the fall by 20 to 25 days and at the same time to reduce the expenditure of expensive fodder which has been prepared for the winter.

It must be planted in sections with medium and sand loam soils which have a sufficient reserve of nutritive substances. It grows well in dry and cultivated peat soils. It is most successful in weakly acid soils.

In intermediate plantings the oil-yielding radish is grown after pulse crops and pulse-cereal mixtures which are utilized for green mass, and in late-summer plantings it is grown after winter rye and winter wheat and barley which have been harvested for grain.

Soil preparaton for the oil-yielding radish must be done immediately after harvesting the preceeding crop. This consists of plowing, cultivation before planting with harrows and rolling.

In producing a large harvest of green mass in a brief period of time, this crop requires a sufficient amount of nutritive substances. In connection with this, it responds well to the fertility of the soil and to applied fertilizers, especially to nitrogen fertilizers.

For planting, it is possible to utilize the farm's existing linseed, grain crop and other seeders with anchor plowshares. The depth of seed planting is 2 to 3 cm. The method of planting is continuous row and the rate of planting is 25 to 30 kg of dry seed per hectare.

Oil-yielding radishes are harvested for green feed during the phase of mass blossoming, namely, the beginning of fruit formation. Harvesting at a later stage is recommended for purposes of ensilage. Ensilage of oil-yielding radishes is best with other crops. Excellent ingredients for combined ensilage are sunflowers, hay from grain crops, feed cabbage, sugar beat tops, mixed grasses and so on. Green mass from the oil-yielding radish can serve as the raw material for producing grass meal.

Growing the oil-yielding radish seed is simple and possible for every farm. If the agrotechnology is followed in the process of production, it is possible to grow 8 to 12 quintals of seed per hectare. The seed plants must be grown in cultivated, medium rich, non-acid soils which are not waterlogged and which are ready early in the spring for plowing. The best preceding crops are winter row crops which remove weeds from the soil, and there should not be any plantings after mustard family crops. The methods of soil preparation for planting are the same as for the other early crops.

The planting periods are the same as for grain crops. The rate of seeding is 15 kg per hectare. The method of seeding is continuous row. The amounts of fertilizers in preplanting cultivation are: nitrogen 60 to 70 kg, phosphorus 50 to 60 kg, and potassium 90 to 100 kg of active substances per hectare. With uniform maturation the harvest is carried out with direct combining, and with irregular maturation it is done selectively.

After threshing, the straw from oil-yielding radishes can be used as feed for livestock as it is readily eaten by cattle, horses and sheep.

Oil-yielding radish seed which the republic's kolkhozes and sovkhozes now have must be planted for establishing seed plants for the exclusive purpose of growing green mass.

Rape

Summer Crop

As a feed crop, summer rape has only been grown in the republic for a short time, however, due to its high productivity it is becoming more widespread.

Summer rape yields a rich green mass which livestock eat well. There are 125 to 247 grams of digestible protein in one feed unit. A characteristic of the nutritive substances which comprise summer rape is its high digestibility. The highest concentration of these substances is during the blossoming stage.

The period between planting and sprouting is 5 to 7 days and between sprouting and mowing maturity for a spring planting is 50 days and for second plantings it is 60 days. Full maturity of the seed requires 80 to 90 days.

This crop is distinguished by its good aftermath. A spring planting yields 2 to 3 mowings after vegetation with a harvest of 650 to 870 quintals per hectare. Its productivity is also high in secondary plantings. At the experimental farm "Zhodino" in Minsk Oblast, the July 15th planting of summer rape produced 569 quintals of green mass per hectare, the July 29th--504 quintals and the August 5th late summer planting--381 quintals per hectare.

The kolkhoz "Rossiya" in Shchuchinskiy Rayon produces a good harvest of green mass from this crop. Summer rape is planted here after feeding winter crops as green mass. The planting is done in light, sandy loam soil with a narrow-row, grain seeder. In preplanting soil preparation 2 quintals of ammonium nitrate and 1.5 quintals of potassium salt are applied per hectare.

For spring plantings, good crops to precede summer rape are grain and row crops through which organic fertilizers were introduced.

The cultivation system is the same as for a planting of early, summer grain crops.

Rape responds well to the application of organic fertilizers, and therefore it is advisable to apply them with the preceding crop at the rate of 30 to 40 tons per hectare along with mineral fertilizers in the dosage N-60 P-30 K-50 applied during the preplanting cultivation.

Summer rape can be grown using the wide row and continuous row methods. The planting rate for the continuous row method is 10 to 12 kg per hectare and for the wide row method it is 5 to 7 kg. The seed is fine and therefore, for uniform planting, it is recommended that it be mixed with inert material (sawdust, sifted mulch and small, sifted components of superphosphate). Planting depth is 1.5 to 2 cm. Continuous planting is done with ordinary grain seeders with anchor plowshares.

It is very important that rape seed can be produced in any area of the republic. It is necessary to plant it in the early spring using the row method at a planting rate of 10 to 12 kg of germinating seed per hectare. The seed is harvested with direct combining when the pods have turned yellow and the seeds have turned brown; this is carried out at the end of August and beginning of September but in very short periods of time in order that seed not be lost. The yield of harvested seed under the best conditions amounts to 10 quintals per hectare. Thus, the coefficient of increase for summer rape is high (1:100), and with correct organization of seed growing for this crop, it is possible to provide seed for the feed plantings of every farm without difficulty.

Winter Crop

During the last 3 to 4 years the Kolkhoz imeni Gastello in Minsk Rayon has utilized winter rape together with other mustard family crops for feeding livestock. The green mass harvest yield is 300 to 350 quintals per hectare. This feed yields high output because livestock eat it well. These feeds are rich also in nutrition. Based on totally dry plants, winter rape contains 17 percent protein, 4.5 percent fat, 10.5 percent ash, 12 percent cellulose and 55 percent BEV (nitrogen-free extractive).

Winter rape is a typical winter crop. When it is planted in the fall, sprouts appear in 5 to 7 days, real leaves form a week after the appearance of full sprouts, and the plants begin the winter in the rosette stage.

In the spring the plants begin to grow early and develop very quickly. Buds form 10 to 20 days after the beginning of spring growth and then blossoming begins. Winter rape is resistant to lodging and grain loss.

When winter rape is planted in the spring, the plants remain in the rosette stage during the entire growing period and are capable of forming abundant green mass. This biological characteristic of winter rape makes it possible to grow it for green mass in spring, post-mowing and late-summer plantings. The harvest yield of green mass from winter rape for two mowings reaches 500 quintals per hectare for spring plants, 300 for post-mowing plantings, 250 to 300 for winter, intermediate plantings and 100 to 150 quintals for late-summer plantings.

Good harvest yields can be produced on limed and fertilized soils. For intermediate, post-mowing plantings the best preceding crops are lupine, maple peas and vetch-oat mixtures and for late-summer plantings the best are winter rye, wheat, barley and early potatoes.

Soil preparation for post-mowing and late-summer plantings must be done immediately after harvesting the preceding crop and consists of plowing, cultivation with harrows and packing with cleated rollers.

For post-mowing, late-summer and winter, intermediate plantings, it is best to apply fertilizers to the preceding crop at a rate of not less than 40 tons per hectare. In this situation mineral fertilizers are applied in the following amounts: N--60 to 80 kilograms per hectare, P--60 to 80 and K--80 to 90 kilograms. If organic fertilizers have not been applied, then the dosage of nitrogen must not be less than 90 kilograms per hectare. It is best to apply phosphorus and potassium fertilizers to the preceding crops in the spring, nitrogen fertilizers before planting the rape or all mineral fertilizers during plowing before planting.

Planting times also affect the harvest yield of green mass. The time for post-mowing and late-summer planting is immediately after harvesting the preceding crop but not later in the southern area than 1-15 August and in the northern area 1-10 August.

Spring, post-mowing and winter plantings are best done using the wide-row or alternate-row methods, while the continuous-row method is best for late summer plantings. The seeding rate for continuous-row and alternate-row methods is 10 to 12.5 kg per hectare and for the wide-row method it is 7.5 to 10. To achieve level sprouts, the seeds must be planted uniformly to a depth of 1.5 to 2 cm.

Winter, intermediate plantings and plantings for seed in the early spring are harrowed.

With the appearance of the mustard family pennyroyal, the sprouts are dusted with 2.5 percent methyl parathion and 12 percent GKhtsG (Hexachlorocyclohexane) (10 to 12 kg per hectare) or are sprayed with a solution of trichlorfon (1 kg per hectare).

Winter Colza

Whether it is sown in spring or summer, winter colza does not form generative organs but grows a leafy mass for two to three mowings and yields up to 500 quintals and more of green mass and 50 to 60 quintals of dry material per hectare in sandy loam and loam-like soils. It withstands fall frosts easily and afterwards continues growing, producing green mass until the end of October. It is therefore a valuable crop for post-mowing and late-summer plantings.

This crop is successful in weakly acid or nearly neutral soil conditions.

Winter colza can be utilized in the fall as feed for fattening or as green supplemental feed. The pellets and silage prepared from winter colza are also distinguished by their high nutrition. In the spring, winter colza should not be used for feed later than the blossoming stage.

Due to its high cold resistance, winter colza grows until the average daily temperature drops below +5 degrees and produces in post-mowing plantings (July) 270-290 quintals and in late-summer plantings (August) 150-250 quintals of green mass per hectare.

If colza is not harvested in the fall it winters well and in the spring quickly begins to grow, forming stems, flowers and seeds. In the spring it is ready for harvest for green mass 7 to 8 days earlier than winter rye.

Winter colza winters best if before the beginning of winter the plants succeed in forming a well-developed rosette with 5 to 8 real leaves. It achieves this stage if planted not later than August 1-10 in the central part and August 1-15 in the southern part of the republic.

Winter colza has been grown for more than 5 years in production plantings on the kolkhoz "Pobeda" in Maloritskiy Rayon. The area for it has reached 120 hectares of sandy soil. Winter colza is planted on this farm mainly after harvesting winter rye for grain. The straw is immediately removed from the fields and they are plowed. The following fertilizers are applied: 50 to 60 kgs of nitrogen and potassium and 35 to 50 kgs of phosphorus fertilizers per hectare.

The continuous-row method of planting is used at the rate of 10 kgs of germinating seed per hectare. Winter colza is utilized on the farm for the dairy herd using the pasture method from the end of September. The plantings are split up into strips of land which are enclosed by electric fences and which are used for feed sequentially. Winter colza which is designated for spring use is not used for feeding in the fall because plants in such plantings do not manage to develop leaves by the end of the growing period and winter poorly. A small area, 2 to 3 hectares, is set aside for seeds and produces well developed foliage before the beginning of winter. There is a yield of 20 to 25 quintals of seed which is sufficient for planting 200 to [illegible] hectares. Thus, the necessity for the farm to grow seed yearly is eliminated.

Perko

Just 8 to 10 weeks after planting fast-growing perko, with proper cultivation, it yields a harvest of 450 to 500 quintals of green mass per hectare.

It can be grown as a post-mowing, late-summer or winter, intermediate crop. With spring or summer plantings it is possible to mow it 2 or 3 times. Due to its rapid growth it is not smothered by weeds. The green mass contains 2.3 to 2.4 percent crude protein. The output of protein per hectare of such harvests exceeds 11 quintals.

The green mass possesses a high degree of digestibility and is eaten readily by all types of livestock. Fifty to sixty days after planting perko is ready for mowing or grazing. Under conditions of sufficient soil moisture and nutritive elements, it can again be used for grazing after a month.

In producing a high harvest yield, perko requires many nutritive substances. Therefore, it is recommended that for plantings in the spring it receive 90 to 120 kg of nitrogen fertilizers, 60 to 90 of phosphorus and 90 to 120 kg of potassium per hectare.

For post-mowing or late-summer plantings the dosage of nitrogen may be reduced to 60 to 90 kg per hectare. The planting times in the spring are early as for grain crops. Post-mowing and late-summer plantings in July yield approximately twice the harvest of an August planting. Therefore, perko should not be planted later than August 10-15. Particular attention must be devoted during planting in order that the seeds not be planted deeper than 1.5 to 2 cm. Ten kg of germinating seeds are sown per hectare. It is planted in rows.

When growing perko for producing green mass in the spring and for seed, the planting should be carried out not later than the first 10 days of August. The seeding rate is the same as for spring planting. A third of the nitrogen fertilizer is applied before planting and the remainder in the spring as a supplement.

Perko has been grown for a relatively short time in our republic. However, sufficient experience has been acquired somewhere. For several years the sovhoz "Kormyanskiy" in Kormyanskiy Rayon has been growing perko for green mass. They have used the narrow-row method of planting with a seeding rate of 10 kg per hectare. They apply 80 kg of nitrogen fertilizers and 70 kg of phosphorus fertilizers per hectare of planting. The first mowing is in the beginning of August and yields 450 quintals of green mass per hectare. Then supplemental nitrogen fertilizers are applied at the rate of 60 kg per hectare. The second mowing is done early in October and each hectare produces 250 quintals. The total yield for 2 mowings is 700 quintals of green mass per hectare.

Nearly 1,000 hectares were planted in Perko last year in Vitebskaya Oblast, and a sufficiently high harvest yield of green mass was achieved on each hectare. Perko plantings were utilized for ensilage and for pasturing livestock. After pasturing, the plantings were supplemented with mineral fertilizers and they quickly grew out again. This made it possible to produce more than 250 additional quintals of green mass from this valuable feed crop.

White Mustard

White mustard is enjoying deserved success because it is rich in protein, mineral substances and carotene. Moreover, it produces abundant green mass. No less important is the fact that mustard is a cold resistant plant which is capable of growing green mass even at relatively low temperatures. Its seed germinate at a temperature of 1 to 2 degrees above freezing, begins to grow at 3 to 4 degrees above freezing and withstands brief autumn freezes of 8 to 10 degrees below freezing. In addition, it is an early maturing crop. It needs only 35 to 40 days to achieve mowing maturity.

For green supplemental feeding, mustard must be utilized during the beginning of blossoming. At a later period (full blossoming through the beginning of fruit formation), when mustard yields a very large harvest of green mass, it is best used for silage. Mustard is good for silage both alone and with other crops. A highly nutritive grass meal is produced from it.

Soil preparation for mustard in second plantings consists of plowing with harrowing and packing and leveling of the surface.

White mustard grows well in soddy podzolic soils. It does not withstand heavy, clay soils with close standing ground water and with high levels of acidity. It can be grown in dry peat soils.

It reacts well to all types of fertilizers, especially nitgogen. The mineral fertilizer dosages recommended for it are: N--90 to 120, P--60 and K--60 to 80. Organic fertilizer is applied to the preceding crop. Seed planting depth is 2 to 3 cm and when planting in dried out soil it is 4 cm. Seeding in late-summer plantings must be done not later than August 10 in the central area and not later than August 15 in the southern area of the republic. In the northern zone of the republic it is possible to utilize late-summer plantings for livestock pasture.

It is sown, as a rule, in the continuous method using grass seeders at a rate of 25 to 30 kg of seed per hectare.

Mustard is planted early in the spring for seed production, as soon as it is possible to begin field work. It can be planted after various crops. The basic and preplanting soil preparation is not at all different from that for summer crops. The seeding rate for the continuous method is 12 to 15 kg of seed per hectare. The harvest is carried out through direct combining with adjustments made for harvesting perennial grasses.

Turnips

The roots as well as the tops of turnips possess high feed qualities. It is sufficient to say that in 1 quintal of roots there are up to 10 feed units and approximately 1 kg of digestible protein, and in a quintal of the tops there is even more, namely, 11 to 12 feed units and 1.3 to 1.8 kg of protein. An important characteristic of this crop is its early maturing. The length of the growing period, depending is 60 to 10 days. Because of this, it is possible to grow it not only in spring plantings, but also in post-mowing and late-summer plantings.

Turnips are less demanding of soil than other root crops. With sufficient applications of organic and mineral fertilizers, high harvest levels of turnips can be obtained both in loamy and sandy loam soils. It even does well in weakly acid soils.

When turnips are planted in normally moistened soil, sprouts appear in 3 to 4 days. It is also significant that turnip seeds begin to germinate at a temperature of 2 to 3 degrees, and the root and leaves withstand frosts of 7 to 8 degrees below freezing. This quality makes it possible to keep the plants in the field until late fall and to obtain higher harvest yields from post-mowing and late-summer plantings.

It is best to plant turnips in crop rotation fields after crops which leave the soil free of weeds, dangerous pests and sources of diseases of mustard family crops. Good crops to precede turnips which are planted in the spring are row crops, grain crops and pulse crops to which organic fertilizers have been applied. For post-mowing plantings, good preceding crops are winter rye for green feed, vetch-oat, pea-oat and lupine-oat mixtures and for late-summer plantings barley, winter rye and early potatoes are good.

Soil preparation for summer post-mowing and late-summer plantings begins immediately after harvesting the preceding crop and consists of plowing, cultivation with harrows and packing.

Turnips are grown primarily in the wide-row method with an inter-row width of 45 to 50 cm. To achieve a normal sprout density, it is necessary to sow 2 to 2.5 kg of seed per hectare. However, in late-summer plantings for green mass it is possible to use interrow or continuous row plantings. The seeding rate in this situation must be raised by 20 to 25 percent.

To combat weeds, the first cultivation and harrowing is done 5 to 6 days after the appearance of full sprouts at a depth of 4 to 5 cm and the second and third after 10 to 12 days at a depth of 6 to 8 cm.

To combat pests and disease, the turnip sprouts are dusted with GkhtsG and trichlorfon and the seeds are treated with granosan, mercuran, TMTD (trimethylthiuram disulfide) or other preparations.

Observing these agrotechnical measures, in light, loamy soil, the experimental farm "Zhodino" in Smolevichskiy Rayon produced a harvest yield in excess of 450 quintals per hectare (roots and leaves) for 4 years.

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LIVESTOCK

MORE RAPID CONSTRUCTION OF LIVESTOCK, OTHER RURAL FACILITIES URGED

Tashkent SEL'SKOYE KHOZYAYSTVO UZBEKISTANA in Russian No 3, Mar 80 pp 6-8

[Article by T. Yakimov, chief engineer of the Administration of Rural Construction, Planning and Building Up of Rural Populated Areas under the Uzbek SSR Gosstroy: "Higher Rates of Construction of Animal Husbandry Facilities"]

[Text] In order to implement the measures that have been earmarked for rapid advancement of animal husbandry in Uzbekistan, it is intended in 1981-1985 to construct and expand animal husbandry complexes for raising and fattening 110,000 head of large horned cattle, poultry farms for producing meat to accomodate 81.5 million head of meat poultry, complexes for raising and fattening 594,000 head of hogs, complexes and mechanized dairy farms to accomodate 67,400 cows, poultry farms for eggs to accomodate 3.3 million laying hens, breeding poultry farms for 50,000 hens,and breeding poultry reproduction facilities to accomodate 2.1 million hens.

During this period it will be necessary to reconstruct 12 enterprises of the Uzptitseprom system. Among them will be the Navoi poultry farm, whose capacity will be increased to 525,000 laying hens and the Takhiatash poultry farm in the Karakalpakskaya ASSR -- to 300,000 laying hens. By 1985 the Yangiyul' poultry operate at full capacity, for producing 4 million broilers a year; the capacity of the Kattakurgan poultry farm in Samarkandskaya Oblast will be increased to 7 million broilers a year; the Samarkand poultry farm will be expanded to a capacity of 700,000 laying hens, and the Bukhara -- to 400,000. Construction will be started on new poultry farms with a capacity of 6 million broilers a year each in Bukhara, Shakhrisabadz and in Kashkadar'inskaya, Namanganskaya, Surkhandar'inskaya and Tashkentskaya oblasts.

For reproducing poultry, it is intended to construct breeding poultry reproduction facilities for eggs: the Andizhan, Bukhara and Fergana -- for 100,000 hens each. It is intended to construct breeding poultry reproduction facilities for meat of the second type in Andizhanskaya and Bukharskaya oblasts -- for 200,000 hens, and the Karakalpakskaya ASSR, Shakhrisabadz, Namangan, Uzunskiy and Urgench -- for 120,000 hens each, as well as other facilities.

Within the system of Uzglavzagotzhivprom of the republic Ministry of Agriculture, in 1980 and subsequent years, 12 animal husbandry complexes will be started for raising and fattening 54,000 head of hogs each. Among them will be complexes on the Sovkhoz imeni Tel'man in the Karakalpakskaya ASSR, the Leninskiy Sovkhoz in Andizhanskaya Oblast, the Kagan Sovkhoz in Bukharskaya Oblast, the Rassvet Sovkhoz in Dzhizakskaya Oblast, the Ukraina Sovkhoz in Namanganskaya Oblast and other sovkhozes. Construction will be started on animal husbandry complexes for raising and fattening 10,000 head of large horned cattle each on the Yerkindar'ya Sovkhoz in the Karakalpakskaya ASSR, the Leninskiy Sovkhoz in Andizhanskaya Oblast, on the Sovkhoz imeni Kirov in Dzhizakskaya Oblast, the Sovkhoz imeni 50 Let SSR in Surkhandar'inskaya Oblast, and there will also be complexes for 5,000 head on the sovkhozes of the Karakalpakskaya ASSR and Kashkadar'inskaya, Tashkentskaya and Khorezmskaya oblasts. Three complexes will be expanded on the Kattakurgan Sovkhoz in Samarkandskaya Oblast, the Sovkhoz imeni XXV S"yezda KPSS in Syrdar'inskaya Oblast and the Sovkhoz imeni 50 Let VLKSM in Tashkentskaya Oblast.

State capital investments in the amount of 1.1 billion rubles are being allotted for the construction of these and other facilities and complexes. This is as much as was invested in the animal husbandry branch during the past 20 years.

Large allocations -- 268 million rubles -- are being allotted for the construction of new and the reconstruction of existing enterprises of the mixed feed and milling and groat industry.

In 1981-1985 it is intended to assimilate and put into agricultural circulation 500,000 hectares of newly irrigated land. This will make it possible to improve the structure of the planted areas, to fully assimilate cotton and alfalfa crop rotations, and to sharply increase the production of feeds and other agricultural products on irrigated land.

The republic's construction subdivisions have accumulated a large amount of experience in the construction of large, modern animal husbandry complexes and poultry farms. Under the current five-year plan alone, complexes have been put into operation for fattening 48,000 head of large horned cattle and for raising and fattening 108,000 head of hogs, complexes for producing milk with 800 and more cows each, poultry farms for eggs with an overall capacity of 1.6 million laying hens and for meat, with a capacity of 18 million broilers a year,as well as many other facilities for production and nonproduction purposes.

Still, we have many shortcomings in the organization of rural construction, including for the needs of animal husbandry. Allotted capital investments are not being assimilated and normative construction deadlines are not being met.

The republic Ministry of Rural Construction, the Goskomsel'khoztekhnika and the Ministry of Agriculture, as clients, from year to year fail to fulfill the established volumes of construction and reconstruction of complexes, farms and poultry farms, they allow serious shortcomings in their planning and staffing and in the installation of equipment, and they put up with a large quantity of imperfect work.

The Uzgiprosel'stroy, Uzgiprosel'khoz, Uzmezhkolkhozproyekt, and Sredazgiprotselinstroy institutes, when planning, still allow certain violations of unionwide normative documents. When planning agricultural enterprises they allow inefficient utilization of land, the location of enterprises on arable land, and an unjustifiable increase in the sizes of land sections that are allotted for construction.

The Uzmezhkolkhozproyekt Institute does not always participate properly in the development of assignments for the planning and selection of areas for construction and does not envision in its plans the necessary measures for the recultivation of the land and the utilization of the productive layer of the soil. In the plans there are deviations from the parameters for buildings that are established by norms, uneconomical and rejected structures are used, and there is an overexpenditure of metal, cement and other materials. Norms are not always observed for the determination of the areas and the heights of buildings, the planning of engineering structures and underground mains, and also sanitary, zooveterinary and fire protection norms and rules are not always observed. All this was revealed during an inspection of the plans for an interkolkhoz complex to accomodate 3,000 animals. This complex was for raising calves and replacing large horned cattle with young ones in the Karakir natural area of Termezskiy Rayon in Surkhandar'inskaya Oblast. The inspection also included the interkolkhoz complex for completing the raising of young animals for replacement which accomodates 3,000 head on the Pravda Vostoka Kolkhoz in Leninskiy Rayon in Andizhanskaya Oblast; the reconstruction of the commercial dairy farm for 400 cows on the Pravda Kolkhoz in Ordzhonikidzevskiy Rayon and the reconstruction of a dairy complex for 400 cows on the 40 Let Oktyabrya Kolkhoz in Bukinskiy Rayon, and also a poultry facility for 12,000 roosters on the Lenin Yuly Kolkhoz in Srednechirchikskiy Rayon in Tashkentskaya Oblast.

Planning institutes do not stipulate adequate measures for protecting the environment from pollution. In order to build areas up in an orderly way and to protect nature, it is necessary to provide for the application of effective means of protecting the environment from pollution and to improve technical decisions regarding the application of recycled water supply systems, the increase of waste-free systems, the reduction of harmful discharges into the atmosphere and a reduction of the degree of their pollution.

The selection of the main construction parameters, the internal layout and design decisions of the buildings and structures should be made taking into account unified overall schemes and products lists for effective standard construction elements. In the area of agricultural production construction it is expedient to improve decisions for general plans of agricultural enterprises on the basis of regional schemes and plans for layout and buildup that have been developed for the conditions of large specialized farms with the construction of large-scale production buildings with maximum blocking of basic and auxiliary facilities, increasing the density of the buildup of the territory of animal husbandry complexes and animal husbandry farms to 45-50 percent.

It should be noted that recently the Uzmezhkolkhozproyekt Institute, on the basis of an analysis, carried out a number of plans and planning developments that take into account the possibility of unifying the bays and structures, lightening their weight, applying local materials and reducing the metal-intensiveness. A single-bay scheme was adopted for agricultural production buildings. This kind of cross section makes it possible to solve technological problems more flexibly and to accomodate any profile of agricultural production. Relying on the positive experience of Moldavian construction workers, plans were developed for single-bay animal husbandry and poultry buildings with sizes of 12, 18 and 21 meters. The bearing construction elements were reinforced concrete semiframe structures. The wall elements were designed from light reinforced concrete panels and the roofing was three-ply asbestos cement with an effective insulator over prefabricated reinforced concrete joists. In areas that do not have a base for manufacturing semiframes and in regions where the possibilities of transporting them are limited, it was stipulated that semiframe structures made of composite elements be used. Thus, while having used bearing elements made of semiframes, the institute included in the plans the possibility of utilizing local construction materials (cement, sand, gravel) and retained the advantages of the single-bay scheme.

The technical and economic comparisons that were made with the design of the building for a cow barn made of semiframe elements and according to the standard design No 801-281 (pier and beam variant, three-bay scheme — 21 meters) of the Uzgiprosel'stroy Institute showed that the cost of construction with the first plan is considerably less, that is, 75,510 rubles as against 90,110 rubles; the corresponding expenditures of steel were 26.5 tons as against 41.65 tons; the expenditures of cement --90 tons as against 165 tons; the weight of the buildings — 220 tons as agains 502 tons; and the labor-intensiveness of the construction — 1,570 man-days as against 1,765.

The economic effectiveness and the design expediency of the decisions that were adopted and also the selection of large light-weight concrete panels for wall elements served as a basis for determining the list of industrial items that are to be produced by enterprises of Uzkolkhozstroy.

Planning institutes must devote serious attention to further improvement and unification of wall elements and roofing. Preference should be given to three-ply roofing made of asbestos cement fiber sheets with mineral insulation on prefabricated light-weight concrete joists or those made of composite panels of plant manufacture with dimensions of 1.5 X 6 meters and 3 X 6 meters which can be laid on the collar beams of the frames with spaces of 6 meters between them. The designs that have been adopted make it possible to provide for a significant reduction in the weight of the buildings and reduce construction costs and labor expenditures. The application of three-ply panels with sufficient bearing capacities produces a savings on the expenditures of steel of up to 22 percent and concrete -- up to 35 percent (as compared to roofing made of prefabricated reinforced concrete ribbed slabs). The wall coverings are made of keramzit and sinter concrete panels. There will be widespread use of three-ply asbestos cement panels in keramzit-concrete framing with an efficient insulator, which are less than one-third as heavy as light-weight concrete panels and 25 percent less expensive.

It should be noted that the level of fully prefabricated construction of rural production buildings in the republic Ministry of Rural Construction in 1979 amounted to 76.7 percent. There has been extensive application of light-weight asbestos cement roofing and wall panels for the construction of agricultural buildings. In 1978 alone approximately 148,200 square meters of them were used.

But in reality the Uzbek SSR Ministry of Rural Construction has a number of essential shortcomings which seriously affect the profitability of the operation of the subdivision. The republic Ministry of Rural Construction is slow at developing a base for the output of effective new prefabricated reinforced concrete elements. Up to the present time it has not assimilated the output of triangular girders without cross stays of the series 1,863-1, output 1, with spans of 12 and 18 meters, as a result of which metal girders are used for roofing in the construction of agricultural production buildings. This does not meet the requirements of TP 101-76. The output of beams with two sloping surfaces in the series 1,462-3 has not been organized even though they were included in the products list for 1974, as a result of which the design institute has suggested using beams with parallel strips. Naturally, this requires additional design measures for creating the slope of the roof, which considerably increases the labor-intensiveness of the construction. The output of prefabricated reinforced concrete plinths in the series 1,432-5, output 2, has not been organized. Instead of these, keramzit concrete panels of the series ST-02-31 are used. The latter are intended for heated buildings and structures.

The majority of the kinds of products produced by the republic Ministry of Rural construction have extremely low coefficients of plant readiness and poor quality, which leads to large nonproductive expenditures at the construction site. Thus inspections conducted by the Uzbek SSR Gosstroy established the poor quality of three-ply asbestos cement panels that are used for the construction of the buildings of poultry facilities at the Termezskaya, Nukusskaya and Bostanlykskaya poultry farms. Constructed on a frame made of untreated wood using mineral wadding instead of semi-rigid mineral slabs, and with incorrectly attached asbestos cement sheets, the wall panels that were installed and the basic mass of them were destroyed, which required significant material and labor resources to restore the wall structures.

A low degree of plant readiness is also noted in the production of keramzit concrete panels at enterprises of the ministry. Thus smoothing machines for improving the finishing of the surfaces were not used at a single one of them. The majority of panels are delivered with unfinished edges, without window spaces and with a large number of cracks and pores on the internal surfaces.

In order to eliminate the defects that have been noted and to increase the profitability of the operation of the Uzbek SSR Ministry of Construction and Uzkolkhozstroy, it is necessary to accelerate the development of an internal production base, to provide in the next few years for the production of highly effective prefabricated reinforced concrete elements in keeping with existing products lists without using metal in the structures for the roofing of agricultural production buildings, and to develop and implement measures for a sharp increase in the degree of plant readiness of items, especially keramzit and concrete panels and carpentry items, as well as to improve their quality significantly.

Successful fulfillment of the construction plan, acceleration of the time periods for the startup of production capacities for agriculture and efficient utilization of capital investments allotted for these purposes are possible only with correct organization of rural construction on the basis of its all-around industrialization and mechanization, on the basis of the generalization and the introduction into construction practice of progressive technical decisions and advanced experience.

Now the task consists in doubling and tripling our efforts and providing for the highest possible rates of development of the material and technical base for animal husbandry. It is necessary to make a decisive breakthrough in rural construction, and especially for the needs of animal husbandry.

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LIVESTOCK

ADVANTAGES OF COMPLEXES FOR RAISING HEIFERS IN MOLDAVIA

Kishinev SEL'SKOYE KHOZYAYSTVO MOLDAVII in Russian No 2, Feb 80 pp 38-40

/Article by P. Samus', chief zootechnician-organizer of the Moldavian SSR Council of Kolkhozes: "Techniques of Raising Heifers"/

/Text/ Six years passed from the time the Brichany Complex for Raising Heifers, the first in the republic, was put into operation. During that period kolkhozes--members of interfarm cooperatives--invested about 100 million rubles in the establishment of the material and technical base of the essentially new dairy farming sector and built 32 such complexes for 140,000 animals. These enterprises make it possible to raise and annually transfer 65,000 to 70,000 high-grade heifers to reproducing farms, which is sufficient for increasing the stock of cows and replacing one-fourth of the milk herd at every department.

Advanced techniques of raising heifer-calves from the age of 10 to 15 days until the transfer of 6- to 7-month pregnant heifers, which best meet the requirements for the industrialization of dairy farming, were introduced at all complexes. During the years of operation of interfarm complexes more than 256,000 heifers were transferred to cooperative member farms (82 percent of the republic's milk herd).

In 1979 alone about 60,000 heifers (25 per 100 cows) were dispatched to dairy complexes and departments. Interfarm complexes reached a level of production ensuring the raising of heifers with an average live mass of 417 kg per head, which corresponds to the first grade and higher.

The specialization and concentration of the raising of young replacement cattle at complexes enabled cooperative member farms to entrust this responsible work to highly skilled zoological and veterinary specialists, experienced production organizers and well-trained and competent machine operators servicing the stock. This is very important under the conditions when a large-scale plan for selection and breeding work envisaging the crossing of all cows and heifer-calves of the raised breeds and their crossbreeds with high-grade bulls of the black-and-white and Holstein-Friesian breeds is being implemented throughout the republic.

The mixed young stock obtained as a result of crossing places higher requirements on raising conditions, because only in such a case can young cows fully manifest their genetic capabilities and show a high dairy productivity from the first days of lactation. Such conditions can be created only at complexes.

As investigations have shown, the black-and-white cows and their crossbreeds raised at the Brichany and other complexes, as compared with Simmenthals, from the first lactation give almost 400 kg of milk more and the total output of milk fat per lactation is 18 kg higher, whereas feed expenditures on a unit of output are 13 percent lower.

As a result of interfarm cooperation and the division of labor, member farms are able to free themselves of worries about raising young replacement stock and to concentrate more attention and funds on developing the dairy herd, strengthening the fodder base, steadily raising the productivity of cows and increasing total milk production. In 6 years the productivity of one cow increased by an average of 576 kg and total milk production rose by 47 percent. The reduction (of 200 rubles, on the average) in monetary, labor and material expenditures on raising one heifer at complexes, as compared with small kolkhoz departments, will give member farms a monetary profit of more than 12 million rubles annually.

Of course, a great deal has been done and the advances made in raising heifers at interfarm complexes gladden us. However, the years of work and experience in the operation of interfarm complexes for raising heifers helped to disclose a number of bottlenecks, which hamper production and do not result in proper production efficiency.

In practice, raising heifer-calves at the veterinary dispensary of a complex (in individual cages and in insulated sections from the age of 10 to 15 days up to 1 month) is advisable. This ensures their good development and high preservation. At the Brichany, Slobodzeyskiy, Dubossarskiy and a number of other complexes from the first days of operation veterinary dispensaries operate at a full load and the waste of animals makes up 0.8 to 1 percent. Experience shows that the age of up to 15 days is the best period for the delivery of heifers for raising at a complex. If this period is missed, heifer-calves, the live mass of each of which is 100 to 120 kg (otherwise there are cases of diseases), must be delivered. On farms heifer-calves reach such a weight at the age of 6 months, whereas at complexes at this age they weigh 170 to 180 kg. This is the result of the lack of conditions for raising young stock.

The transfer of heifer-calves from the veterinary dispensary to the first shop, where animals from the age of 1 to 4 months and 4 to 6 months are raised, is the next stage in raising heifer-calves at the complex. After 2 or 3 years of operation of these complexes there were difficulties with the protection of animals against pulmonary diseases, such as colds and infections, almost everywhere. Heifer-calves become sick and lag in their growth and there is a large percent of animal culling and waste.

In the opinion of specialists, such a situation is the consequence of the fact that the principle in effect in the veterinary dispensary, that is, keeping heifers in insulated sectors where "everything is occupied"--"everything is empty," is violated in this shop. Along with this the experience accumulated by science and practice in raising heifer-calves at industrial type complexes has shown the efficiency of their activity provided they are occupied by young stock 10 to 15 days old. Before the age of 3 months regroupings and all kinds of movements of young stock throughout shops at a complex are undesirable.

The technical council of the Kolkhozzhivprom Scientific Production Association of the Moldavian SSR Council of Kolkhozes examined this question and adopted a decision to introduce a change in the previously accepted techniques of raising milk heifer-calves at industrial complexes. For this provision was made to expand the building of the veterinary dispensary (quarantine) by "attaching" two additional frame premises 12 meters wide divided into sections for 48 head (the total capacity of the building is 240 places for animals). Heifer-calves from the age of 10 days up to the age of 3 months are kept in raised group cages, eight head in each. The existing first shop is to be reconstructed for keeping heifer-calves from the age of 3 to 6 months and next, according to the generally accepted techniques.

During the years of operation of these complexes the accepted system of fodder distribution by means of the TVK-80 stationary fodder distributor did not stand the test. At a number of complexes reconstruction was carried out and, in practice, the mobile method of distribution of fodder mixtures by means of the KTU-10 and RMM-0.5 trail-type distributors proved its value. This made it possible to eliminate interruptions in feeding and underfeeding of animals due to the frequent breakdowns and failures of belt conveyers, to reduce the number of adjuster fitters and to distribute fodder at any time, regardless of the supply of electric power at a complex.

In connection with the appearance and delivery by industry of scraper units for the removal of manure it is advisable to change the existing method of removal of liquid manure at complexes, which will make it possible to reduce the large water consumption, to obtain higher-quality organic fertilizers and to avoid cases of pollution of the environment with drainage.

The problem of the advisability of building at complexes for raising heifers mechanized grounds for keeping animals during the summer period was discussed for a long time. The practical work of the Drokiyevskiy, Dondyushany, Lazovsk and a number of other enterprises showed the high efficiency of and the urgent need for the existence of such grounds when replacement heifer-calves are raised. During 6 or 7 months of the year heifer-calves enjoy an unlimited amount of fresh air and sunshine and are in constant movement. All these factors taken together with a sufficient animal feeding level contribute to a better growth and development of young stock and to a good assimilation of the nutritive substances in feed. As a result, heifers with an average live mass of 438 to 476 kg per head are dispatched from these complexes. Furthermore, the removal of animals to summer grounds makes it possible in advance to repair, clean and disinfect barns, to adjust mechanisms and the water supply network and to prepare a complex well for the wintering of livestock.

There were many debates in connection with the problem of the type of feeding for replacement heifers at complexes. In order to ensure their intensive raising, emphasis was placed on the concentrated type of feeding with concentrated feed making up 35 to 38 percent of the ration structure and the daily weight gain averaging 600 to 700 grams.

Scientific research and the practical experience of many collectives in raising heifers show that during work with black-and-white and red-steppe livestock and its crossbreeds the use for the replacement herd of commodity farms of first-grade and elite heifers (daily weight gain up to 18 months, 500 to 550 grams), provided young replacement stock is raised in a directed manner, is an important achievement.

As is well known, feeding is the main factor in directed raising, but the level of nutrition and of the obtained weight gains is not as important in it as the type of feeding, that is, the ratio of the main types of feed--coarse, succulent, concentrated and milk--in rations.

The type of feeding whose ration structure includes 30 percent of the coarse feed (including 22 percent of hay and haylage), 45 percent of succulent feed (together with the green mass), 20 percent of concentrated feed and 5 percent of milk feed ensures a good development of young replacement stock and a high milk productivity of first heifers.

A moderate consumption of concentrated and milk feed, but an abundance of bulky feed of plant origin during a 2-year period of raising heifer-calves and heifers is economically advantageous and ensures a high productivity and good reproductive functions of future cows.

In order to raise a good heifer, everything is important. However, the practical experience of the specialists of the Dondyushany Complex (V. S. Zheleznyy, director) should be especially stressed. Feed procurement is one of the most crucial periods for the specialists of that complex. Therefore, every year, together with the workers of the association for feed production, they directly participate in silage and haylage making and in hay drying. They always have high-quality feed. It is fed there only in the form of mixtures with due regard for age groups and according to a ration. At the same time, the daily routine is strictly observed so that before 0930 hours the feed is distributed to the entire stock. At the complex there is always order, high labor discipline and, most importantly, a careful and tender attitude toward animals. Therefore, all heifer-calves and heifers are tame and their nature and behavior are calm, which is important when future cows are raised.

In 1979 cooperative member farms in Dondyushanskiy Rayon obtained 2,000 heifers 6 to 7 months pregnant, each of which had an average live mass of 467 kg. The average daily weight gain was 570 grams (10.6 man-hours and 9.3 quintals of fodder units were spent per quintal of weight gain). At this complex the cost of weight gain is the lowest, that is, 124.38 rubles, which is 38 rubles less than the average in other complexes in the republic. The cost of raising one heifer is 485 rubles and the sale price is 510 rubles (500 to 600 rubles lower than the cost when such stock is purchased from other farms).

Along with this it must be noted that, despite the growth of heifer production, unfortunately, the increase in the stock of cows in the republic in 1979 comprised only 4 percent. This is reflected in milk production significantly. Implementation at each complex for raising heifers of all the outlined measures will make it possible to greatly increase not only the efficiency of raising replacement heifer-calves and heifers, but also of the dairy farming sector in the republic.

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REGIONAL DEVELOPMENT

VAZALINSKAS DISCUSSES IMPORTANT TASKS OF LITHUANIAN FARMERS

Vil'nyus SOVETSKAYA LITVA in Russian 11 Apr 80 pp 3-4

/Report by Deputy V. Vazalinskas, deputy chairman of the Lithuanian SSR Council of Ministers: "Urgent Tasks of Farmers"/

/Text/ Comrade deputies!

The workers of socialist agriculture in Soviet Lithuania, implementing the agrarian policy of the party, the tasks put forward by the 25th CPSU Congress and the 17th Congress of the Communist Party of Lithuania and the decisions of the July (1978) and November (1979) Plenums of the CPSU Central Committee, attained quite good results in the increase in production, in the fulfillment of the plans and assignments for the sale of products to the state and in the solution of important organizational, economic and social problems. Although the last 2 years of this five-year plan were especially difficult and slowed down the rates of growth, in 4 years of this five-year plan the average annual volume of gross agricultural output, as compared with the average indicator of the past five-year plan, increased in the public sector by 21 percent, grain production, by 24 percent, milk production, by 18 percent, meat production, by 21 percent and egg production, by 45 percent. Four-year assignments for the sale of grain, potatoes, flax fiber, vegetables, fruits, berries, milk and eggs to the state were fulfilled. The plan for the procurements of sugar beets and the plan with an additional assignment for the sale of meat to the state remained slightly--by 2 percent--unfulfilled.

Although the republic's agriculture has begun the last year of the five-year plan, having basically fulfilled the most important assignments of the past period, the situation in livestock breeding remains complicated and the completion of livestock wintering takes place under great tension. However, a firm resolution to overcome the difficulties and to do the utmost so that the annual assignments and the assignments of the entire five-year plan may be fulfilled successfully is felt everywhere.

The last 2 years have been especially unfavorable for fodder production. This year we had only 72 percent of the fodder necessary for the wintering of livestock, including mixed feed supplied in accordance with the plan and additionally obtained concentrates. On many farms throughout the winter period livestock had to be fed at lowered norms. This had a negative effect on the productivity of livestock and on the production and purchase of livestock products. On kolkhozes, sovkhozes and other state farms in the first quarter of this year, on the average, one cow produced 67 kg milk less than during the same period last year. The weight gain of livestock was lowered and farms sold livestock of smaller weight. On farms of all categories in the first quarter of this year 3 percent less livestock and poultry, 11 percent less milk and 4 percent more eggs were purchased than during the same period last year.

Although the situation in livestock breeding is not easy, major negative changes have not occurred. The stock has been preserved and the level of production and procurements has not been lowered comparatively much. This once again confirms that the republic's socialist agriculture, mobilizing reserves and efficiently utilizing fodder, is capable of overcoming the difficulties that have arisen.

The CPSU Central Committee and the Union government gave considerable help to the republic, having additionally allocated fodder grain, and fraternal republics and oblasts, coarse fodder. Farms helped each other a great deal. The collection of food waste from enterprises and the population also contributed to the replenishment of fodder resources.

The difficulties in the last few years caused by the shortage of fodder taught farm managers and, especially, workers on livestock breeding farms a great deal. The benefit from the preparation of fodder immediately before feeding becomes more and more obvious. More fodder preparing shops and areas are being established on livestock breeding farms and fodder preparation techniques are being mastered better. Recording has improved and control over fodder utilization has intensified.

At the November Plenum of the CPSU Central Committee Comrade L. I. Brezhnev stressed that "... to significantly increase meat production in the country is the first duty of managers of the agricultural sector, local party and Soviet bodies, specialists and all workers in livestock breeding."

We must pay special attention to meat production, not permit its reduction now, but, on the contrary, seek its further significant increase.

At present, ensuring the fulfillment of minimum stock sale schedules, we must preserve the necessary livestock resources in order to fulfill the plans of subsequent quarters and the annual plan. We must do our utmost to increase or, more accurately, to restore the previously attained weight of sold livestock.

Now, when there is a shortage of concentrates, it is advisable to sell more hogs, although they have not reached a large weight, and young cattle should be preserved as much as possible for sale in the second half-year. This will make it possible to bring young stock up to the necessary sale weight, to increase meat production, to improve the fulfillment of sale plans and to obtain a price increment.

Observing these principles, during this wintering period many farms did a great deal not to reduce the number of stock, to preserve all the pedigree livestock and to create the necessary base for an increase in the pedigree stock next year. Therefore, now it is necessary to take measures to rectify the situation. The practice of killing low-weight young cattle for the internal needs of farms or of selling it without justification must be eliminated as soon as possible.

Morbidity and mortality among livestock have a negative effect on meat production. It is necessary to improve the care of livestock and to intensify the use of veterinary preventive and therapeutic measures.

In order to preserve the number of the hog stock in the first half-year and to have as much stock as possible in the second half-year, herd reproduction was reorganized accordingly on farms. It is assumed that the assignments for the production of hoglings in the first half-year will be fulfilled and there will be more of them than last year. It is necessary to see to it that these hoglings are fed with fodder of the new harvest and sold this year.

Farms of the private sector have a considerable share in the production and procurements of meat in the republic. The public sector by means of forward contracts greatly replenishes the resources of fattening livestock from them. There is sufficient livestock in private use. Therefore, the sale plan envisaged for this sector must be fulfilled. However, this year the course of procurements in this sector evokes great concern, because in the first quarter of this year 29 percent less livestock was sold to the state than during the same period last year. It is necessary to see to it that the number of livestock belonging to the population is increased, to ensure the fulfillment of the set assignments for the sale of hoglings and young poultry, to improve the conditions of keeping livestock belonging to the population, to give it more help in provision with pastures and fodder, to improve the purchase of livestock from farms of the private sector in the maximum possible way, creating the most favorable conditions for the sale of livestock to the state, and to stop speculation. It is necessary to see to it that farm managers and village soviets are constantly concerned with the utilization of these reserves.

The shortage of fodder was especially reflected in the course of production and sale of milk to the state. A total of 36,000 tons of milk, or 11 percent less than last year, were bought on farms of all categories in the first quarter of this year. The Ministry of Agriculture, executive committees of rayon soviets and their administrations of agriculture must see to it that the reduction in the indicators of milk production is not justified by the shortage of fodder alone.

A pasture period most favorable for an increase in milk production is approaching. Therefore, it is very important to allocate more fodder for calved and the most productive cows and to see to it that all the cows go out to pastures most fattened. The help with concentrates now given farms makes it possible to do this.

The Ministry of Agriculture, rayon executive committees, their administrations of agriculture and farms should promptly take all measures and rectify the situation in dairy farming.

On April 1 of this year Rokishkskiy, Kapsukskiy, Shakyayskiy, Raseynskiy, Radvilishkskiy, Yurbarkskiy, Kel'meskiy and Mazheykskiy rayons in the public sector had fewer cows than last year. Measures must be taken to rectify this situation. It happens that young and productive cows are discarded without justification.

Owing to a better organization of milk purchase from the population, 9 percent more milk was purchased in 3 months of this year. However, the purchase in this sector was reduced in March. There are no justifications for this. There is more milk on the population's farms. Therefore, we should see to it that such an important reserve is maximally used for an increase in milk purchases. The ministries of meat and dairy industry and of procurements, executive committees of rayon and village soviets and farm managers should pay more attention to this.

Now it is very important to make good preparations for the pasture period. We have all the conditions for a good fertilization of pastures and especially of the areas where the grazing of livestock will begin first. An efficient organization of work during the period of transition and a continuous supply of green fodder, clean water and mineral substances for livestock--these are the factors on which the fulfillment of the plans for milk and meat production and procurements depends.

Important and responsible tasks are to be solved in plant growing this year. It is especially urgent to normalize the situation in grain and fodder production so that neither this year, nor next year livestock wintering begins with such a low provision with fodder as in the last 2 years.

Striving for this goal, we will have to even more persistently introduce a high standard of farming on all farms and to be more concerned with improving the time and quality of land cultivation and sowing, refining the application of fertilizers, accelerating the introduction of crop rotations, breeding the most suitable plant varieties and intensifying the control of weeds and plant diseases and pests. The duty of farms and specialists is to more widely and creatively use the recommendations worked out by scientific institutions and the experience of advanced farms in production.

In order to fulfill the five-year plan for grain production, this year it is necessary to grow no less than 3.2 million tons of grain. To attain this goal, this year, as we committed ourselves in the agreement on socialist competition with Belorussian farmers, we must obtain, on the average, no less than 28 quintals of grain per hectare.

In order to obtain a high harvest, a fairly good basis has been established in all the republic rayons this year. In the fall 481,000 hectares of winter crops were sown, including 446,000 hectares, with grain. On the whole, wintering conditions were favorable for winter crops. For the sowing of spring crops soil was plowed everywhere in the fall and the time and quality of plowing were also not bad. In the fall organic and mineral fertilizers were applied to considerable areas.

On the whole, for spring sowing this year farms in the republic are well provided with seeds of grain crops, which meet sowing quality requirements. Flax and perennial grass seeds have also met the necessary quality requirements. However, a number of farms are not yet fully provided with perennial grass seeds, especially clover, as well as peas, vetch, lupin and other spring pulse crops. The procurement of seeds and purchase of their lacking quantity must be completed in the next few days.

Special attention should be given to the breeding of seeds of grain crops. It is important to see to it that in all rayons and farms seed plots are sown only with treated seeds of high-quality regionalized varieties. It is necessary to take the most efficient measures to improve the breeding of seeds of pod bearing crops--vetch, peas, beans and lupin--and to obtain the maximum quantity of their seeds. This is most important for the solution of the problem of increasing the content of protein in fodder.

The repair of equipment has been completed in most rayons. A total of 97 percent of the tractors and 99 percent of the cultivators and seeders have been prepared for spring field operations. The State Committee for Supply of Production Equipment for Agriculture must take every measure so that at the beginning of spring field operations an exchange stock of machines and units is created and the problem of providing farms with spare parts and petroleum products is solved efficiently.

The rayons and farms that now once again check the preparation of tractors, motor vehicles and soil cultivating and sowing equipment for operation act correctly. It is necessary to specify whether sowing schedule plans, especially the distribution of the operation of mechanized links, meet the existing capabilities. All high-power 1-150K and K-700 tractors should be provided with soil cultivating and sowing wide-cut units. Technical service links provided with means of transportation, welding units, tools and spare parts and materials most necessary for repairs should be established on every farm.

It is very important for farms to be promptly provided with petroleum products and to use them efficiently.

The provision of farms with machine operators is greatly reflected in the rates of field operations. To compensate for the shortage of machine operators, during the spring sowing campaign it is first of all necessary to utilize all the personnel reserves on farms and, if needed, to call tractor operators of patron organizations for help. It is necessary to ensure good conditions of work, rest and nutrition for machine operators and all participants in the sowing campaign.

The success of sowing operations largely depends on how the drawn up plans and schedules for land cultivation, application of fertilizers and sowing are fulfilled on farms and how efficiently they are adjusted if the weather or other important factors introduce unexpected corrections. It is very important for farm managers and specialists to do this thoughtfully and efficiently, without lowering the rates of field operations and without detriment to the quality of operations. The introduction of advanced technology, advanced forms of labor organization and the most refined methods of overall utilization of equipment and the maximum utilization of the technical capabilities of machines should contribute to successful work.

Our capabilities and shortcomings in the cultivation of commodity crops--potatoes, vegetables, flax and sugar beets--and in the fulfillment of the plans for their procurements have been disclosed in the last few years. The farms that specialize in the cultivation of these crops should be better provided with means of mechanization and help should be given them in recruiting personnel and in establishing permanent mechanized links.

Utilizing the accumulated experience, this year it is necessary to continue to improve the cultivation of potatoes and to increase their yield. Now all potato seeds must be well prepared for mechanized planting. It is especially important to plant potatoes early in straight and full rows without empty spaces and to ensure their good care throughout the vegetative period. It is necessary right now to make good preparations for mechanized potato digging, utilizing combines as best as possible.

This year it is necessary to continue the specialization of the cultivation of commodity potatoes and to increase the responsibility of specialized farms for the fulfillment of the plans for the sale of potatoes to the state and for the quality of products supplied to consumers. Potatoes can and should become a productive and profitable crop everywhere.

Last year the results of cultivation and procurements of sugar beets were not bad. However, some rayons nevertheless did not fulfill the plans for the sale of sugar beets to the state. The low yield of sugar beets was the main reason. Agrotechnical requirements are still not met in many places.

In 1976-1977, years unfavorable for sugar beets, a low harvest was grown in the republic and the debts to the state totaled 108,000 tons of sugar beets. In the last 2 years rayons and farms partially covered these debts. However, we entered the fifth year of the 10th Five-Year Plan, still having debts of 52,000 tons. In order to liquidate them this year, we must obtain more than 820,000 tons of gross harvest.

Nor was last year favorable for flax growing. The end result was low--3.2 quintals of flax fiber per hectare and a low quality of output. Much more attention should be given to flax growing.

All the attention of farmers should now be directed toward the best implementation of spring sowing. For this it is necessary to utilize all the capabilities, all the reserves and all the advantages of our large-scale, technically well-equipped agriculture.

Farms in the republic do a great deal to strengthen the fodder base. The structure of fodder crops is improving and their yield is growing, although not on such a scale as one would wish. Small areas of natural meadows and pastures are drained and cultivated every year.

In accordance with the decree of the July (1978) Plenum of the CPSU Central Committee and the decree of the CPSU Central Committee and the USSR Council of Ministers "On Additional Measures To Increase the Production of Coarse and Succulent Fodder in 1980 and To Improve Its Quality," the appropriate decree, which confirms the assignments for the production of hay, haylage, silage, grass meal and chop and fodder crop roots for 1979-1985 and outlines measures to ensure the reserves of this food and its good quality, was adopted in the republic.

The Ministry of Agriculture, executive committees of rayon soviets and their administrations of agriculture must improve the work on the further search for additional potentials for increasing grain and fodder production. On every farm it is necessary to analyze the existing situation and to refine the overall plans of measures ensuring an increase in the production of grain and fodder and an improvement in their quality this year and for the entire period of 1980-1985.

This year the republic's farmers will have to prepare 1.350 million tons of hay, 1 million tons of haylage, 300,000 tons of grass meal and chop, 4 million tons of silage and 2 million tons of root crops. For the 1980-1981 wintering period, on the average, no less than 20 quintals of fodder units of coarse and succulent fodder should be prepared per standard head of cattle.

About 1 million hectares of arable land have been allocated for fodder crops in the republic and the possibilities of expanding these areas are very limited. Therefore, it is necessary to increase the yield of these crops, but on many farms it is still low.

The yield of perennial grass is still low. Such a situation cannot be tolerated. Perennial grass areas must be correctly sown and well fertilized and the harvest of perennial grass must be gathered promptly and without losses in order to obtain at least 50 to 60 quintals of hay per hectare on all farms.

The yield of annual and silage mixtures is low. This happened, because less cultivated soil was reserved for these mixtures. Moreover, it was not fertilized sufficiently and was sown last and the crops had many weeds. Finally, there was a great deal of disorder in the recording of their harvest.

Attention to the fulfillment of hay production plans must be increased considerably. On the average, in the last 4 years of the five-year plan in the republic the hay preparation plan was fulfilled only 86 percent. This year on farms work on hay preparation should be planned so that as much hay as possible is produced and not only general plans, but, what is very important, plans for hay production for collective livestock are fulfilled. Hay reserves must also be created without fail.

This year we must see to it that every rayon and farm fulfill the assignments for haylage production. For its production it is necessary to make up a full set of the necessary equipment, to organize its cooperation, to see to it that quality haylage is prepared on every farm and to improve the utilization of haylage towers.

To improve the quality of all types of fodder is a very important task. Therefore, it is necessary to strictly control the observance of the technology established by science, the rates of introduction of the most advanced methods of preparing grass fodder and the expansion of the production of grass meal and chop and to see to it that more hay is pressed and dried by means of active ventilation.

Much attention should be given to the utilization of units for grass meal production.

The republic's farms have 709,000 hectares of cultivated pastures and meadows. The summer output of livestock breeding and the accumulation of grass fodder for winter largely depend on how they are utilized. Therefore, it is very important to take care of such areas correctly, to fertilize them well and to use them in accordance with all agrotechnical requirements.

In the republic there are 0.46 hectares of cultivated pastures per standard head of cattle. Last year 2,880 fodder units per hectare were obtained. Where cultivated pastures are taken care of, fertilized and used correctly, harvests are much greater. Last year farms in Prenayskiy, Kedaynskiy, Shyaulyayskiy, Anikshchyayskiy and Shakyayskiy rayons obtained 3,540 to 3,920 fodder units per hectare. However, on farms in Akmyanskiy, Shal'chininkskiy, Trakayskiy, Plungeskiy, Tauragskiy, Utenskiy and Tel'shyayskiy rayons the yield of cultivated pastures totaled only 1,600 to 2,200 fodder units per hectare.

The areas of cultivated meadows in the republic occupy 184,000 hectares. Farms that take care of these meadows correctly obtain a great deal of good fodder from them. This year everything should be done so that on every farm, owing to the introduction of scientific recommendations and the experience of advanced farms, the use of cultivated meadows and pastures is improved considerably and no less than 3,000 to 3,500 fodder units per hectare are obtained.

For the republic's farms reclamation specialists established 17,000 hectares of irrigated cultivated meadows and pastures. In the hands of good managers such green land is vast wealth bringing a rich harvest under any weather conditions. However, there are farms where these areas are not utilized intensively, at times are not even watered, are fertilized poorly and do not give the expected yield.

Silage production is to be increased this year. For the purpose of a big accumulation of the reserves of this valuable and high-quality fodder advanced farms prepare silage at three stages during the season. This enables them to more evenly utilize equipment and manpower. It is necessary to see to it that this year silage is prepared in such a way on every farm.

This year we must improve the growing of fodder root crops considerably. Thus far the plans for the preparation of this fodder have been fulfilled most inefficiently. More concern for an increase in the yield of fodder root crops, improvement in the quality of sowing operations, care of crops and mechanization of their cultivation should be manifested. It is necessary to see to it that fodder root crops and their tops are processed promptly and without losses and that the plans for their preparation are fulfilled completely.

This year, taking the state of winter crops into consideration, it can be calculated that there will be more straw. Therefore, it is necessary to see to it that on every farm all of it is well harvested and preserved for fodder for livestock and that its reserve is created.

To replenish fodder reserves, it is necessary to correctly utilize the tops of sugar beets, fodder root crops and vegetables, as well as the food waste of the industry and the urban population.

Nor is the hay harvest far off. Right now it is necessary to draw up detailed fodder preparation plans. On every farm, with due regard for the areas of natural and sown grass and other fodder crops, as well as for what type and amount of harvesting equipment is available, it is necessary to establish mechanized complexes and detachments for fodder preparation. Widely utilizing advanced fodder preparation techniques, it is necessary to complete the harvesting of first-cut grass on every farm no later than July 1. It is necessary to constantly control the course of preparation and quality of fodder and to efficiently eliminate the shortcomings encountered at this section of work.

The Ministry of Agriculture should review the existing and develop additional measures for moral and material incentives for agricultural workers for the fulfillment of the plans for fodder preparation, measures increasing the responsibility of farm managers and specialists for the results of work in this area.

Comrade deputies! Soviet bodies together with agricultural institutions, farm managers, specialists and all farmers under the leadership of party organizations this year will have to do a great deal of persistent work to overcome the existing difficulties, to eliminate the encountered shortcomings and to ensure the envisaged increase in agricultural production. It is necessary to continue to increase the role and responsibility of local soviets of people's deputies, their executive committees, permanent commissions on agriculture and deputies in the fulfillment of state plans, strengthening of production discipline and development of socialist competition among the republic's farms and with farmers in fraternal Belorussia. For the solution of this year's crucial problems the soviets of people's deputies in the localities jointly with farm collectives will have to do everything so that the negative consequences of the last 2 years unfavorable for agriculture are overcome finally. The good results of this year will become a firm base for the fulfillment of the tasks of the approaching 11th Five-Year Plan and the republic's weighty contribution to an appropriate welcome for the 26th CPSU Congress.

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AGRO-ECONOMICS AND ORGANIZATION

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AGRICULTURE IN SIBERIAN TERRITORIAL PRODUCTION COMPLEXES

Moscow SEL'SKOYE KHOZYAYSTVO ROSSII in Russian No 4, Apr 80, pp 21-22

[Article by V. Boyev, director of Sibniieskh (Siberian Scientific Research Institute of Agricultural Economics), and A. Shev'yev, scientific worker at the institute]

[Text] At the present time, large territorial production complexes (TPK) are being developed in Siberia: West Siberian Oil and Gas, Kansk-Achinsk Fuel and Power, Sayanskiy, Noril'sk, Central Krasnoyarsk, Irkutsk-Cheremkhovo, Bratsk-Ust'-Ilimskiy and a number of others. With the intensive development of industry, there is a drastic growth in urban population and this, of course, requires development of a reliable food base. Since agriculture forms the food resources of an industrial complex, utilizes the latter's resources (electric power, heat and water supply, building industry) and participates in the production infrastructure, it is an organic element of this complex.

The main directions of accelerated development of this sector in this region are, in our opinion, formation of specialized suburban zones, separate or grouped agrarian industrial enterprises. Much attention is also being given to organization of private subsidiary farms [plots] and implementation of a major social program.

By virtue of the specifics of various TPK's, one can develop diverse types of farms, but as a rule suburban ones are of prime significance, as their objective is to provide industrial centers with foodstuffs that cannot be transported. The experience of such large Siberian cities as Novosibirsk and Krasnoyarsk shows that the suburban zones can provide a significant amount of such products. For example, the Usol'ye-Sibirskiy Agroindustrial Combine in Irkutskaya Oblast, which was founded on the basis of the production infrastructure of an industrial center, includes a hog complex for 108,000 pigs, a poultry plant for 920,000 layers to be subsequently expanded to 1.5 million, a hothouse combine covering 6 hectares, a hatchery producing 200,000 layers, mixed feed plant producing 500 tons of feed per day, a duck farm for 4.5 million broilers and a settlement for 5000 people.

The location of several enterprises within a compact territory, in the form of a single agroindustrial complex, yields a large economic effect. According to the estimates of Vostokgiprosel'khozstroy [Eastern State Institute of Agricultural Construction], such an arrangement made it possible to save 5.4% of the capital investment and 3.6% of operating expenses, which constitutes 8-9 million rubles. Not only are expenses reduced, but favorable conditions are created to secure personnel.

The experience of establishing the agroindustrial combine near Khabarovsk merits attention; there, a 550,000 layer hen poultry farm, hog-fattening complex for 54,000 head, pedigreed stock farm of 440 primary sows were put in operation in 1975-1978 in the Nekrasov area, as well as an experimental settlement for the workers at these enterprises. According to the data of the Amurgiprosel'khozstroy Institute, placement of agricultural facilities in an area of group use of power sources, water supply and treatment plants made it possible to reduce building expenses, including power and heat, water supply and sewer system, by 8.6 million rubles, or 31%, as compared to separate construction of enterprises; it lowered operating expenses by more than 5 million rubles, i.e., 50%, and to obtain an annual economic effect (according to the difference in adduced expenses) of 6.3 million rubles.

The reserve capability of heat and electric power stations, as well as possibility of expanding water supply and treatment plants, have made it possible to additionally build a fattening complex for 10,000 head of young cattle per year, to enlarge the swine breeding complex, locate a meat and bone meal shop and peat compost processing plant there. Design and estimate documentation is being prepared for the construction of these facilities.

The concentration of large volumes of construction work in one area makes it possible to draw upon large construction organizations and do the work better. The first section of the poultry farm at the Nekrasov Agroindustrial Combine was built in 33 months and put on line 2 years and 8 months before the target date. The swine breeding complex was also put in operation before the target date. Both were accepted with an excellent rating.

The Nazarovskiy sovkhoz in Krasnoyarskiy Kray is an example of the great potential for highly effective production under TPK conditions. It is situated in the western part of the Kansk-Achinsk fuel and power complex. For many years, this farm has been operating profitably as a result of wise intrafarm and intrasectorial specialization, organization of all sectors of livestock breeding on an industrial basis with optimum scope and proportion of production, as well as high technological discipline. Highly intensive agriculture there serves as a solid foundation for industrial livestock breeding. At this sovkhoz, there are 39,400 hectares of agricultural crops, including 31,000 hectares of plowed fields. The farm is oriented toward beef and dairy production, with a well-developed grain production. The sovkhoz produces over 47,000 tons of grain, more than 3000 tons of meat; it gains a profit of 6 million rubles and overall profitability constitutes almost 129%. The grain harvest reached 22.2 centners in 1977-1979.

At this sovkhoz, there are nine departments and eight cattle farms, including six dairy farms and one swine breeding farm. Specialization takes the utmost consideration of local conditions and resources of each department. The first is the swine breeding department. There are 14,500 swine in its complex, with completed herd turnover. There are three sections in the technological process: nonbreeding and pregnant sows; farrows and raising piglets up to the age of 2 months; further raising and fattening. There is a good conveyer flow system of production. The swine being cattled are in buildings that are totally mechanized and automated, which permitted increasing the load per swineherd-operator to 3000 head, labor per centenr weight gain to 6.4 man-hours, feed to 6.7 centners of feed units and cost to 69.5 rubles. The mean delivered weight is 110 kg per head. Profitability level of pork production constitutes 152%.

Beef production is concentrated in the fourth and sixth departments. Calves up to 8-10 days old are kept with their mothers, then heifers are transferred to the fourth department and the bullocks to the sixth. All of the animals are kept with nursing cows up to the age of 6 months by the large group method. Upon reaching a live weight of 150-160 kg, the young cattle in the same departments are transferred to open areas. There, all the necessary conditions are provided. There are windbreak walls made of boards around the buildings. The animals are protected from the rain by a shelter consisting of two rows of boards with a layer of tar paper. The straw litter is changed once a year in the shelter. There is mobile delivery of feed, and the water is heated in the winter. The production processes are mechanized and automated, so that the work load per worker is now raised to 500 head. The cost per animal space is 66 rubles.

The heifers are transferred from the yard to dairy herds or a control barn 3-4 months before calving, while young beef cattle is fattened up to a weight of 480-500 kg. At these yards, the mean daily weight gain is over 900 g, feed outlay constitutes 7.4 centners of feed units per centner of weight gain, labor constitutes 1.9 man-hours and cost is 48.4 rubles. Selling price with allowances per centner live weight and fatness is 215-220 rubles. These economic indicators of work in yards [sites] are to be largely credited to profitability of fattening cattle at the farm as a whole, and profitability constitutes up to 200%.

Let us discuss briefly dairty cattle farming. Virtually the entire herd is kept in complexly mechanized buildings. The work load per worker is

26 head of cattle; labor per centner of milk is 3.4 man-hours. The milkers work on a two-cycle daily schedule. The production indicators are as follows: 3200 kg milk yield, 1.3 centners of feed units per centner of milk, 4.4 man-hours per centner of milk, cost 15.2 rubles and profitability 75%.

The most important condition that results in low cost of livestock production and stable development of the sector is a solid feed base. The farm supplies virtually all of its own feed, and only 7% is purchased.

The importance of private subsidiary plots is not diminishing, on the contrary, it is growing with the intensive growth of population in industrial centers; in Siberia, 26% of total milk and meat production, 25% of egg protection, 76% of potatoe and 44% of vegetable production are referable to these plots. It would require 3.5-4 billion rubles of capital investment to produce this amount of meat and milk in the public sector. Hence, it is understandable how important it is to formation of the food base of TPK's to implement the decree of the CC CPSU and USSR Council of Ministers pertaining to private subsidiary plots of kolkhoz farmers, blue and white collar workers. But this work must be well-organized.

For example, this is how it is being set up in Rybinskiy Rayon of Krasnoyarskiy Kray, which is part of the intensively developing eastern part of the Kansk-Achinsk Fuel and Power Complex. After the above-mentioned decree was issued, a unified program was elaborated in this rayon to render assistance to owners of private subsidiary farms: permanent pastures were allocated for cattle grazing, hay fields for procurement of coarse feed; the administrators of all agricultural enterprises assign transportation for kolkhoz and sovkhoz workers to haul hay. Heifers are sold to families who want a cow. Calves are furnished on the basis of annual achievements in the form of an incentive for good care of young cattle. Piglets and chicks are also sold to the public. Hay is given to workers engaged in processing feed during the summer. The workers who live on the territory of a farm are sold grain, chaff and straw.

Help is given to plow vegetable gardens, install water pipes and deliver water for irrigation of fields near farms [homes].

Much has been done to organize the sale of extra production of private farms. In this rayon, a network of special centers was created and there are traveling procurement officers. Trade enterprises and public eating facilities also purchase the products. The workers at procurement offices make contracts with the public for raising and selling cattle and swine. Mixed feed is sold to those who have made such contracts. The suppliers have the advantage of priority in purchasing commodities in great demand at consumer cooperatives.

As a result of the steps that have been taken, the volume of meat delivered by the rayon's population under the 9th Five-Year Plan increased by 72%, that of milk increased by 7%, potatoes by 70% and wool delivery increased by 19 times. In 1976-1979, the plan for purchasing meat from the people [private farming sector] was 124% fulfilled, for milk the figure was 137%, potatoes 197% and wool 167%.

Creation of a food base for Siberian TPK's is a pressing and complex task, and to fulfill it successfully there must be complex use of all of this area's reserves.
[304-10,657]

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AGRO-ECONOMICS AND ORGANIZATION

ROLE OF PRIVATE AGRICULTURE DISCUSSED

Saratov STEPNYYE PROSTORY in Russian No 9, Sep 79 pp 36-38

[Article by G. Agafonov, Candidate of Economic Sciences, Penza: "Role of a Private Farm"]

[Text] The following data (see Table)* is well known:

Annual Per Capita Consumption of Food Products in the USSR

	Recommended Ration	Actual Consumption			
		1965	1970	1975	1977
Grain products, kg.	110	156	149	141	140
Potatoes, kg.	97	142	130	120	122
Sugar, kg.	40	34.2	38.8	40.8	42.0
Fish and fish products, kg.	18.2	12.6	15.4	16.8	17.7
Milk and dairy products, kg.	405	251	307	316	322
Eggs	292	124	159	215	224
Meat and meat products, kg.	82	41	48	57	57
Vegetables and melon crops, kg.	146	72	82	87	89

Although the obvious progress achieved in the structure of consumption testifies to its qualitative improvement, it nevertheless should be noted that the per capita consumption of the more important food products in our country still lags behind the level of consumption in developed capitalist and European socialist countries and behind the scientifically valid norms for human nutrition.

As mentioned during the July (1978) Plenum of the CPSU Central Committee, improvements in national welfare have recently brought about a raised demand for animal husbandry products in particular. In this regard, a situation has developed wherein, notwithstanding a noticeable increase in the production of meat, milk and other products and an improvement in branch organization, the present level of development for animal husbandry is still not in keeping with the rapidly increasing requirements.

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* Sources: "Trud i zarplata v SSSR" [Labor and Wages in the USSR], Moscow, 1974, p 370; "Narodnoye khozyaystvo SSSR v 1975" [National Economy of the USSR in 1975], p 594; EKONOMICHESKAYA GAZETA, 1978, No 40, p 15.

Thus the role played by a private farm in the production of food products is still rather great. They are being managed by 37 million families of kolkhoz members, sovkhoz workers and manual and office workers. By the end of the Ninth Five-Year Plan, the overall area under crops on private farms amounted to 6.64 million hectares. A large portion of this area -- 5 million hectares -- was occupied by potatoes and vegetables; this represented 94 percent of all of the land being used for these crops in agriculture. The private plots furnished 61 percent of the gross yield of potatoes, 34 percent of the vegetable crops and approximately 40 percent of the gross output of horticulture[*]. The role played by private farming is also rather great in connection with the production of meat and dairy products -- the proportion of such output with regard to the overall number of cattle on 1 January 1979 was 20.8 percent, number of cows -- 33.4 percent, pigs -- 21.5, sheep and goats -- 20.1 percent[**]. In the families of kolkhoz members, 95 percent of the potato requirements are being satisfied by means of the private farms, vegetables -- 75 percent, meat and meat products -- 80 percent and eggs -- almost completely. The families of municipal manual and office workers purchase from the market approximately 50 percent of all potatoes consumed, more than 20 percent of the vegetable and melon crops, 8 percent of the meat, 10 percent of the milk, 12 percent of the eggs and approximately 30 percent of the fruit and berries[***].

And although actual reality has demanded and still demands the maintenance of private farms, a rather contradictory phenomenon has manifested itself since the end of the 1950's: the need for maintaining private farms has been recognized officially and yet, as "remnants" of the past, administrative and moral pressure continues to be imposed on them. At a number of kolkhozes and in many rayons and even oblasts, this has led to a sharp reduction in the size of the private farms and in the number of privately maintained livestock and this in turn has slowed down somewhat the growth in prices on the kolkhoz market. The national economy was harmed to a considerable degree. Thus, compared to 1940 when there were 161,100 cows on private farms in Penzenskaya Oblast, by 1960 the number had fallen to 141,000 and in 1976 their number had decreased to 107,000, a drop of more than one and a half times; in 1940, there were 572,000 sheep and goats of the 766,800 available on all categories of farms; in 1960 -- 548,100 and in 1976 -- a total of only 316,100, or 55.2 percent less than prior to the war. And although the production of cattle has on the whole increased threefold on all farms in the oblast, the number of sheep and goats remains at the pre-war level*.

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[*] "Problemy preodoleniya sotsial'no-ekonomicheskikh razlichiy mezhdu gorodom i derevney" [Problems of Overcoming Socio-Economic Differences Between Cities and Countryside], Moscow, 1976, pp 217-224.

[**] Computed by the author on the basis of USSR CSA data. "On the Results of Fulfillment of the State Plan for Economic and Social Development of the USSR in 1978." USSR CSA report. EKONOMICHESKAYA GAZETA, 1979, No 5.

[***] Sarkisyan, G. "Agrarian Policies of the CPSU and National Welfare." EKONOMICHESKAYA GAZETA, 1978, No 34, p 10.

The situation is even more complicated on individual farms and in certain rayons throughout the oblast. For example, over a period of 4 years the milking herd maintained on a private basis at the Rodina Association in Nizhnelomovskiy Rayon decreased by five times and today comprises only 150 head. The Kolkhoz imeni Lenin is confronted by the same problem. Yet only 7 years ago there were more than 2,000 cows being maintained on a private basis by the Verkhnelomovskiy Village Soviet. This is considerably more than the number available today at the livestock facilities of these two farms. In Nizhnelomovskiy Rayon as a whole, approximately 15,000 cows were maintained on a private basis 10 years ago and today there are just slightly more than 4,000.

The same can be said regarding Bednodem'yanovskiy Rayon, where today there are not even 2,000 cows in the private sector, despite the fact that there were almost 10 times this number 12 years ago.

In many of the decrees of the directive organs, it is pointed out quite clearly that the kolkhozes and sovkhozes must furnish the local population with active assistance in developing their private farms. It is emphasized in these decrees that feed must be sold to the owners of cows and that tracts of land must be set aside for procuring hay and for grazing. However, some leaders do not accept responsibility for the private farms of rural inhabitants. They maintain that they are held strictly accountable for the sales plans for animal husbandry and farming products and that this does not hold true for the private maintenance of cows.

Thus the rural inhabitants graze their animals in ravines, along the edges of roads and on other unsuitable lands and they graze them either singly or in groups.

Many farm leaders frequently make mention of feed shortages. They maintain that there is not enough for the privately maintained cows. However, inspections carried out on a number of farms have confirmed the fact that feed is available and in fact it is even being wasted. In 1977, almost all of the straw was left out on a field of this same Rodina Association and 30 hectares of sunflowers were not harvested. Indeed, initiative should have been displayed back in the summer -- the owners of the cows could have accomplished a great deal. Thus the benefit was threefold: for the farm, for the inhabitants of a village having livestock and for the entire state.

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* Computed by the author using the collection: "Penzenskaya oblast' v tsifrakh i faktakh" [Penzenskaya Oblast in Figures and Facts], Penza, 1977, pp 62-63.

Why is it that the executive committees of local soviets, together with the farm leaders, do not devote thought to decreasing the expenditures of time and labor in the private economy? A glance tells one that today the working machine operators, livestock breeders and many specialists would like to acquire a cow, a young pig or any type of poultry.

"A rural inhabitant without a plot is like a tree without roots. Since time immemorial a peasant has had his own chickens and has sold eggs in the city. Why then should he now be required to obtain each egg on the basis of orders received from Moscow?" so wrote Comrade L.I. Brezhnev in his book "Tselina" [Virgin Land]. "In our country, use must be made of every opportunity and every scrap of land. Only in this manner can we achieve increases in all areas in the production of agricultural products and have "victuals" available for our common dining table."

The advice offered by L.I. Brezhnev stimulated initiative on many farms in Penzenskaya Oblast and it has been supported extensively by the soviet and party organs. Thus the Kolyshleyskiy Rayon Executive Committee approved the initiative displayed by the inhabitants of Koltovskiy Village (see STEPNYYE PROSTORY [Steppe Expanses], No 7, 1979), who resolved during one of their gatherings to increase the number of livestock and poultry being maintained on their private farms and also the production of animal husbandry products. The executive committee recommended that the sovkhoz directors and kolkhoz chairmen include measures in their production-financial plans for ensuring that the workers and kolkhoz members are supplied with coarse and succulent feed for the livestock and poultry being maintained for their private use. The repair-construction section is responsible for building the appropriate outbuildings.

Special importance is attached to the procurement organizations in this regard. For example, positive experience has been accumulated at the Kolkhoz imeni S. Ordzhonikidze in the Village of Shrom in Makharadzevskiy Rayon, Georgia. The "Plans for a Kolkhoz Family" are developed annually on the farm. A considerable role is played here by a new system, introduced in the republic in 1977, for procuring products produced on the private farms of kolkhoz members and sovkhoz workers. Whereas earlier the purchasing of such products was carried out by the procurement organizations, today the task has been assigned to the farms.

What has this accomplished?

Earlier the members of kolkhozes had to carry the products to the procurement points themselves and in the process they experienced difficulty in obtaining transport vehicles and they wasted a great amount of time. Yes and at no time were they confident that the delivered vegetables and fruit would be accepted: quite often the procurement specialists lacked both packaging materials and transport vehicles. In particular, it was very difficult to sell perishable goods. The new system of procurements through the farms eliminated these shortcomings. The "production plans" for private farms enable a kolkhoz to consider in advance the extent and type of assistance required. The administration knows to whom, how much and the schedules for allocating transport vehicles and packaging materials, fertilizers, toxic chemicals and equipment for tilling the tracts. Certainly, the issuing of such materials must not detract from social production. Having included deliveries of a portion of the output produced on the private farms in its own plan, the kolkhoz simultaneously began servicing the private plots of the kolkhoz members in the same manner as any other sector of social production. It is our opinion that such experience is deserving of broad dissemination.

At the present time, a program has been defined in Penzenskaya Oblast for further improving the work of the procurement organizations. In particular, this program calls for the opening, prior to 1980, of 200 receiving-procurement points, in a manner so that such points will be in operation on the territory of each village soviet.

The subsidiary farms of enterprises and organizations can furnish good "victuals" for the common dining table.

On the basis of combined effort and within a brief interval of time, the first phase of a complex for the fattening of pigs was created in the city of Kuznetsk. This was accomplished not on the basis of who could invest which type of available resources, but rather upon the material potential possessed by each plant, factory or institute and organization. The Kuztekstil'mash and Kuzpolimermash plants undertook to produce and install the equipment and Stroydetal' Plant No. 6 furnished the concrete. The Kuzkhimstroy SMU [Construction and Installation Administration] and a shoe factory undertook to install the floors and repair the fencing and a tannery, a cord and twine factory and a domestic services combine repaired the roofs and ceilings, glassed-in the facilities and so forth. Once the complex is completely built, it will be capable of raising up to 4,000 pigs and supplying the city with 240 tons of meat annually. And this represents either 20 tons per month added to the fixed capital, or more than two months that the city's dining halls will be supplied with meat obtained only from this complex.

The fact that this work is profitable and promising is borne out by the fattening base of the Nizhnelomovskiy Rayon Consumer Union in the Village of Atmis. It was 10 years ago that a dining hall was opened for business in this village. And from the very commencement of its operations, the local workers' store encountered the problem of meat. Neither its purchases from the population, nor the assistance it received from the Sovkhoz imeni Kuybyshev were able to fully solve this problem. Initially a small and primitive pigsty was installed directly in the farmyard. Sometime thereafter, another standard pigsty capable of accommodating several hundred head was built. In 1977, cattle fattening operations were started. In 1978, 533 quintals of meat were obtained from the site. They also carried out duck fattening work here. More than 3,000 ducks were made available for sale. Today the Atmisskiy Workers' Cooperative not only supplies meat for its own dining hall and sells some to rural residents, but in addition it also supplies meat for the production of sausage. It is produced by a department of the rayon consumer union. Its capability -- 500-700 kilograms of sausage and smoked foods daily. This year the number of cattle at the Atmisskiy fattening station will be increased to 300 head, pigs -- 1,500 and ducks -- to 15,000.

The feed problem has been solved completely on a farm of the Atmisskiy Workers' Cooperative. One hundred and twenty hectares of hitherto unused land have been found on forest land. The workers' cooperative at the Yur'yevskiy Sovkhoz is procuring straw in unlimited quantities and purchasing silage and haylage and the Mayorovskiy Sovkhoz is supplying it with malt residues. All of the principal operations at the fattening station in Atmis are being carried out by only two herdsmen-shepherds.

Although the experience of the Kuznetsk and Nizhnelomovskiy Rayon workers is rather convincing, nevertheless many administrations and departments have still not fully solved these problems. Thus the oblast's administration for internal affairs and the ORS [Department of Workers' Supply] for the Penza branch of the railroad have completely eliminated the fattening of pigs and this same work has been reduced to a minimum by oblzdravotdel [oblast department of public health], oblsobes [oblast department of social security], oblono [oblast department of public education] and by the oblast council for administering the health resorts of professional trade unions. Such industrial enterprises as the Verkhozim Cloth Factory, the Tvorets Rabochiy Factory, the Chaadayevka Housing Construction Combine, the Zemetchino and Bekovo sugar plants, the Makhalinskiy Construction Materials Combine and others, all located in rural areas, for all practical purposes do not concern themselves with developing a base for the fattening of cattle.

In the recently published decree of the CPSU Central Committee and the USSR Council of Ministers concerning private farms and the subsidiary farms of enterprises, organizations and institutes, all of the economic departments were given a direct recommendation with regard to the development of private farms for the fattening of cattle, pigs, sheep, goats and poultry. They will be allocated tracts of land and everything else that is required; the problems concerned with the prices for products supplied to public eating establishments, as well as other problems, are also being solved.

In speaking before the November (1978) Plenum of the CPSU Central Committee, L.I. Brezhnev stated: "The potential offered by the subsidiary farms of plants and factories and also the private farms of the rural population is still being employed to only a weak degree. The decrees that we have adopted dealing with these matters are still being carried out very slowly. More assistance must be furnished to these farms in acquiring young stock and in the supplying of feed. A definite social climate must also be created, wherein the kolkhoz members and sovkhoz workers would come to believe that they are performing a useful state task by virtue of their raising livestock and poultry at home"[*].

The experience of life confirms the just nature of these words.

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[*] Brezhnev, L.I. Speech during Plenum of CPSU Central Committee on 27 November 1978. EKONOMICHESKAYA GAZETA, No 49, p 4.

AGRO-ECONOMICS AND ORGANIZATION

REQUIREMENT FOR DEVELOPMENT OF PRIVATE AGRICULTURE STRESSED

Saratov STEPNYYE PROSTORY in Russian No 8, Aug 79 pp 2-3

[Lead article: "Development of Private Farms -- A State Problem"]

[Text] In solving the strategic task -- providing reliable support for the country in terms of food goods and agricultural raw materials for industry -- it was pointed out during the July (1978) Plenum of the CPSU Central Committee, the party attaches great importance to developing the private farms of kolkhoz members and sovkhoz manual and office workers, an important source for augmenting the food resources. The private sector is promoting to a considerable degree the creation of a strong raw materials base for industry.

However, the successes achieved in developing the private farms and increasing the production and procurement of agricultural products are greatly dependent upon effective assistance being received from the village and settlement soviets of people's deputies and from the leaders of kolkhozes, sovkhozes and procurement organizations.

The valuable experience accumulated in this regard in Saratovskaya Oblast is deserving of attention. It is sufficient to state that, as a result of measures undertaken recently, the proportion of meat produced on private farms has reached 22 percent, milk -- 27 percent and eggs -- 56 percent, compared to the overall production volumes for these products.

The consistent implementation of measures aimed at developing the private sector up until the end of the five-year plan, developed by the executive committee of Piterskiy Rayon taking into account the recommendations of rural deputies, made it possible last year to increase meat procurements by 1.3 times compared to 1974, eggs -- by 1.4 and wool -- by 1.2 times. Active assistance in increasing the numbers of livestock and poultry among the population was provided by the executive committees of the Borkovskiy Village Soviet in Balashovskiy Rayon, Kurdyumskiy Village Soviet in Tatishchevskiy Rayon, Oroshayemyy Village Soviet in Dergachevskiy Rayon, Zelenodol'skiy Village Soviet in Engel'sskiy Rayon, Sovkhoznyy Village

Soviet in Yershovskiy Rayon and by many other lower organs of state power. Together with the kolkhoz administrations and sovkhoz boards of directors, they are assisting the rural residents in acquiring livestock and poultry, raising their animals, selling surplus products and acquiring feed. Hence it is by no means an accident that steady growth is being observed in the number of cattle, pigs and poultry being raised in the populated points of these rural soviets. Many rural leaders have begun acquiring private farms. This is largely the result of work carried out by the executive committees of rayon soviets of workers' deputies. For success in carrying out this important state measure has been promoted by the constant control exercised by the executive committees over fulfillment of the measures prepared for developing the private farms.

The force of the example set by the deputies in augmenting the food resources can best be appreciated by examining the practice of the Bol'shekamenskiy Rural Soviet in Tatishchevskiy Rayon -- which has repeatedly initiated an oblast socialist competition among the village and settlement soviets, with regard to the procurement of surplus livestock products among the population. At the beginning of this year, during citizen gatherings in the villages of Bol'shaya Kamenka and Novopol'ye, socialist obligations were undertaken to sell to the state no less than 1,000 kilograms of the milk obtained from each privately maintained cow. This decision was no doubt influenced by the example set by the rural soviet and the deputies having cows at their disposal, all of whom vowed to sell no less than 2,000 kilograms.

The comprehensive development of individual farm holdings is dependent to a great degree upon the leaders of kolkhozes and sovkhozes. In this regard, the examples set by the Put' K Kommunizmu Kolkhoz in Krasnopartizanskiy Rayon and the Yeruslanskiy Sovkhoz in Fedorovskiy Rayon are considered to be rather instructive. Compared to 1 January 1978, when there were 329 head of cattle on the private farms of members of the Put' K Kommunizmu collective farm, by the end of the year this number had increased to 367. A considerable increase also took place in the number of pigs. Overall, 70 quintals of milk instead of 56 were procured from the population and 33 quintals of wool -- two times more than the figure planned. All of this became possible owing to the fact that the leadership of the kolkhoz displayed a high degree of responsibility in meeting the requirements of the rural residents. It has become customary here to assign a special brigade for supplying the owners of cattle with coarse feeds, to allocate tracts of land for use as pastures and gardens and to organize the availability of concentrates.

The Yeruslanskiy Sovkhoz in Fedorovskiy Rayon is successfully fulfilling its plans for selling farming and livestock products to the state. However, the board of directors attaches the same importance to strengthening the private farms of the sovkhoz's manual and office workers as it does to solving successfully the problems concerned with social production. The rural residents have been provided with both land and the required equipment. The sovkhoz has undertaken the task of supplying coarse feed to the owners of livestock.

The rural soviets are responsible for ensuring that this valuable initiative is disseminated in every possible way.

An inspection carried out in this same Saratovskaya Oblast has revealed that, just as in the past, almost one third of the kolkhoz members and sovkhoz manual and office workers are not maintaining livestock and in a number of rayons such as Taltayskiy, Romanovskiy, Khvalynskiy, Vol'skiy, Yekaterinovskiy, Kalininskiy and Arkadakskiy, reductions have even been recorded in the number of cattle.

The organizational work being carried out by the rural soviets and kolkhoz and sovkhoz leaders, directed towards increasing the numbers of livestock and poultry, must be reinforced by good personal example. Indeed, can we tolerate a situation wherein not one of the 50 leaders and specialists at the Kolkhoz imeni Lenin in Vol'skiy Rayon, located on the territory of the Cherkasskoye Settlement Soviet, is maintaining a cow? Such examples are by no means singular in nature.

Growth in the production of meat on the private farms can be accelerated by increasing the number of pigs and poultry being maintained on them. And the population must receive effective assistance from the kolkhoz and sovkhoz leaders. Last year, 200,000 young pigs and 8.8 million chicks were sold throughout the oblast for the purpose of satisfying private requirements. However, a number of farms are under an obligation to the population. In particular, the sale of young pigs to rural inhabitants is being carried out in a poor manner by the farms in Krasnoarmeyskiy, Ivanteyevskiy and Arkadakskiy rayons. The agricultural administration of the oblast's soviet of workers' deputies, the rayon (municipal) executive committees, the village and settlement soviets and the leaders of farms must undertake urgent measures aimed at achieving proper organization for the selling of livestock and poultry to the population.

During the past 3 years, the number of rabbits on private farms throughout the oblast has increased from 33,500 to 55,000. However, even this index could be considerably higher. In many rayons, particularly Baltayskiy, Ivanteyevskiy, Perelyubskiy and Samoylovskiy, societies for amateur rabbit breeders have still not been created.

The executive committees of village and settlement soviets and the leaders of farms must display concern for the organization of zoological-veterinary services for livestock being maintained on a private basis by citizens.

The private farms can be very productive in terms of supplying the population with potatoes, vegetables and fruit. The organizations of consumer cooperation must perform in a more purposeful manner. Experience has shown that the work of cooperators in concluding agreements with the population for the procurement of surplus agricultural products is clearly inadequate. Only 4,000 such agreements, or two times less than last year, have been concluded this year. In order to improve the organization of this work, more extensive use should be made of counter sales of agricultural implements and goods which are in high demand.

However, let us return once again to the problem of supplying the private farms with feed. The feed requirements must be taken into account in the industrial financial plans of the kolkhozes and sovkhozes. Pastures and haying lands must be made available for the maintenance of livestock in the private sector.

The great and responsible tasks associated with agricultural development require that the soviets and their executive committees implement improvements in the forms and methods employed in carrying out mass-organizational work. Every attempt must be made to ensure the active participation of all deputies and the permanent committees in the work of mobilizing the oblast's workers towards carrying out those plans and socialist obligations associated with supplying food products for the population and raw materials for industry.

The management of the private farms is a matter of state concern. This is why their development must be the object of constant attention by all deputies of village and settlement soviets. The decisions handed down during the July and November (1978) plenums of the CPSU Central Committee and the USSR Constitution impels us towards the carrying out of this task.

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IMPORTANCE OF HORSES IN NORTHERN RSFSR STRESSED

Moscow IZVESTIYA in Russian 28 Mar 80 p 2

[Article by A. Polezhayev, director of the Politotdelets Sovkhoz, Vologodskaya Oblast: "One Horsepower"]

[Text] I recently witnessed the following scene. A very unattractive horse was harnessed to a sleigh and standing at the edge of a forest settlement. It was surrounded by a group of youngsters who pressed hard against each other in an effort to obtain a better view.

Meanwhile, off in the distance the smart looking Zhiguli and Moskvich vehicles sparkled as they rushed along the concrete highway and one could hear the rumbling of the powerful KamAZ trucks, the hoods of which concealed tens and hundreds of horsepower. But the children displayed no interest in the motor vehicles: both the youth and the adults as well are accustomed to seeing the machines. These mechanical forces are accepted today as being nothing more than the consequence of industrial development throughout the country and even throughout the world. Gasoline is poured into the tank and the ignition key turned -- and thereafter one can drive to his heart's content over the asphalt.

Yes, over the asphalt... But an automobile does not move as friskily along a country road. The Zhiguli vehicles must be towed over a forest road during the season of bad roads. One must transfer to a Uazik or Niva, which have 4-wheel drives. But more often than not a tractor is required. Nor is a K-700 able to pass through in all areas, or especially along our forest side.

At the same time, ordinary horses (we do not have elite ones, only village horses) are able to reach a distant brigade camp, somewhere beyond a lake and near a swamp or small village, to which point asphalt roads still do not reach, nor are they expected to in the near future. And the horses deliver various items to this point: milk, goods required for a store, latest newspapers, magazines, television expert or an inspector for a domestic services combine.

Certainly, a helicopter could be rented: it is said that we are now rich and that the farms have much money in their accounts. But is it wise to employ hundreds of horsepower there when one will suffice, a horsepower which was created by nature and which is reliable and thrifty?

Mention should be made concerning the economic aspects of the problem. At the present time, the possibility of replacing the principal tractive machines in agriculture with horses is unthinkable.

Nevertheless, horses are still necessary. Take our sovkhoz for example -- 3,000 head of cattle and only 60 horses. The horses consume 2 percent of the feed supplies. Yet, great use is obtained from the. Each summer we saddle up 35 shepherds. This means that the herds are becoming more mobile, the pastures are being used more completely and they are being trampled down to a lesser degree and in the final analysis the cattle are producing noticeably greater quantities of milk and meat. In the winter the horses participate in the work of hauling farmyard manure out onto the fields, procuring firewood and transporting feed to the farms during the season of bad roads. They are of great help to our 92 tractors and 48 motor vehicles. Even more important is the fact that although they do not substitute for the equipment used in the principal operations, nevertheless the horses are irreplaceable in those areas where neither wheels nor caterpillar tracks can pass.

And if we are discussing feed, then is it not true that for every 10 times that he swings his scythe, a shepherd presents an armful of fresh grass to his horse? Or a small stack of hay during the winter. And the youth and admirers of nighttime activities find quite a bit. It is a type of enchantment -- to sit before a camp fire of a summer evening?

There are many farms in our almost inaccessible Vologodskaya Oblast on which the roads are considerably worse than is the case at our suburban sovkhoz. The roads of our neighbors -- Arkhangel'skaya Oblast and the Komi ASSR -- are even more complicated. Yes and is there anybody who would maintain that the roads in the nonchernozem zone are exceptional? It would seem also that there should be a greater number of horses and yet this unfortunately is not the case. The number of horses is decreasing with each passing year. For some reason, the planning organs are not paying attention to this fact. The leaders of many farms have lost interest in their horses. The quality of the zootechnical work has fallen. And although 80 calves are being obtained annually from every 100 cows in the oblast, only 17 colts are being foaled from 100 mares. Moreover, the figures are even lower on many farms.

By no means do all of the young agronomists and zootechnicians venture forth on horseback. Rather, they request the use of a heavy-duty motorcycle or a cross-country vehicle. One can easily understand why. It is recalled that not too long ago the animal husbandry faculties at agricultural VUZ's and technical schools conducted a special examination on the breeding of horses and they gave instructions on the harnessing of horses. Such an examination is no longer being given. Moreover, the possibility for doing so is limited anymore. Moreover, the situation in agriculture with regard to the availability of harnessing gear, sledges and wagons is critical. The experienced harness and saddle makers have grown old and no new ones are undergoing training at any of the rural professional-technical schools. And there are few who are aware as to which works should be fitted out with equipment. For example, there is our smart Vologda troika, used for driving guests to the VDNKh [Exhibition of Achievements of the National Economy of the USSR].

Today only a few horses are to be found on the private plots. A limitation which was imposed long ago still prevails in this regard. And the question is often asked as to why rural residents are not permitted to acquire a horse, or at least a colt, a practice which is permitted in Kazakhstan and in the central Asian republics. There would be those who would relish the idea of maintaining a horse on their private plots, together with a cow and poultry.

I held discussions with others. Although not everyone, nevertheless there were many who maintained horses. At least they said they did.

And there are many advantages to doing so: plowing one's own private plot and cooperating with and assisting a neighbor. To transport farmyard manure for fertilization purposes and firewood from the forest. Indeed, they are already adapting motorcycles for carrying out this work on the private plots.

Understandably, it will be necessary to organize the long-forgotten production of horse-drawn plows (today it is impossible to find them anywhere), light-weight harrows, cultivators and wagons.

One horsepower. Its importance is considerably greater than I have outlined it in this article. It was by no means an accident that my story began with school children clustering around an ordinary rural horse. This century, characterized as it is by equipment, tends to limit the opportunities for communicating with live nature. Yet this is very necessary for man.

At the Cherepovets Hippodrome, which is located along the border of our sovkhoz, a children's-youth sports section has been created. There is no end to the number of individuals wishing to participate in the work of this section. The strict trainers are accepting only the most diligent individuals, those who have faultless school records. Yet how many adult spectators gather at the hippodrome on a day that trotting races are scheduled to take place? A festive spirit fluorishes in one's heart upon seeing a trotting horse, a smart looking troika or, certainly, an ordinary country horse.

Thus, it is still too early to relegate to the archives this ancient friend of man -- the horse, which has traveled a long road with him, from ancient times to the heights of civilization. In all aspects, the horse is still quite useful.

Thus, let us ponder together the best methods for raising horse-breeding to a new level throughout the country and increasing the efficiency factor for one live horsepower.

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UNDERPAYMENT FOR PRIVATELY OWNED CALVES

Moscow TRUD in Russian 5 Dec 79 p 2

[Letter from Bushuyev, Shekovets and other kolkhozniks, Prokhorovskiy Rayon, Belgorodskaya Oblast]

[Text] This past summer the chairman at our kolkhoz "Krasnoye Znamya" came to us, the kolkhozniks, with a request to sell our surplus calves to the kolkhoz for fattenning. He named a price--one ruble 50 kopeks per kilogram of live weight. The head animal specialist accepted the cattle and he too confirmed the chairman's word: They would pay a ruble and a half per kilogram.

We sold 12 calves. But the accounting showed that they payed us another price--one ruble 37 kopeks per kilogram.

The kolkhoz chairman declared that this is the price set by a resolution of the Prokhorovskiy rayispolkom and rayon board of agriculture.

Why was it necessary to name the original price? It seems like our kolkhoz leaders merely deceived us.

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AGRO-ECONOMICS AND ORGANIZATION

BRIEFS

SUITABILITY OF OLDER IMPLEMENTS--Lempikha, Permskaya Oblast--It would seem inappropriate at this time to even mention horse-drawn mowers, scythes and sickles. However, in some instances they are still suitable for use at kolkhozes and sovkhozes. For example, let us assume that grain crops have lodged on certain tracts. Although a combine can do nothing, a horse-drawn mower could harvest the tracts. And on small distant fields and meadows, where considerable difficulty would be encountered in attempting to deliver the usual equipment, these implements could prove to be very suitable. Unfortunately, very few farms have these implements at their disposal and very few horses remain in the villages. Yet this represents a reserve which would be of great assistance in reducing losses. [Text] [Moscow TRUD in Russian 3 Apr 80 p 2] 7026

HORSESHOES REQUIRED--Irbitskiy Rayon, Sverdlovskaya Oblast--A business trip which I made to Irbitskiy Rayon left me feeling somewhat depressed. I still recall a rather sad picture: a woman was attempting to raise a horse which was lying on a road. She was having no success. She glanced at the sledge containing bags of flour. The 1st Brigade of the Kolkhoz imeni Chapayev was waiting for the flour to be delivered. What was to be done? We left our vehicle and furnished assistance in freeing the horse from its harnessing. It stood up with difficulty and thereafter cautiously, in the manner of a child learning how to walk, it began moving towards a cuvette. Along the way we visited the central farmstead of the Kolkhoz imeni Chapayev and its chairman, Aleksandr Nikolayevich Rybukhin. We related the incident to him. He merely sighed sadly in response. It turns out that his kolkhoz is not the only one affected by such incidents. The problem has to do with the horseshoes and nails. The neighboring farms are also unable to procure horseshoes. Thus the animals are tormented and the farms suffer. Although the modern equipment is wonderful, horses are still required in the rural areas. Thus the farms must be supplied with horseshoes and nails and good high quality harnessing gear must be produced. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 28 Mar 80 p 3] 7026

LOANS FOR GREENHOUSE CONSTRUCTION--In the 4 January issue of the newspaper SEL'SKAYA ZHIZN' for this year and in the article entitled "Development of

Collective Horticulture and Gardening," it was pointed out that loans should be issued to the members of horticultural associations for the building of greenhouses. A question has been sent in by S. Gavrilov of Kiev -- to whom and in what manner are such loans issued? Credit for acquiring or building greenhouses or for improving gardening plots is extended to manual workers and office employees -- members of horticultural associations (cooperatives). The credit is issued in amounts up to 1,000 rubles, with repayment to be made over a period of 5 years, commencing with the month following the month in which the construction (assembly) of the greenhouses was completed or work associated with improving a plot was completed. An interest rate of 2 percent annually is charged for loans issued for the purpose of procuring or building greenhouses or for improving gardening plots. In the case of overdue loans, an interest rate of 3 percent annually is charged for the period that the loan is overdue. Credit is extended to the manual and office workers of economic accountability enterprises and organizations through these enterprises and organizations and to the manual and office workers of budgetary organizations -- directly by USSR Gosbank institutions, on the basis of petitions from the budgetary organizations. The issuing of loans for procuring or building greenhouses and for improving gardening plots is carried out in the amounts called for in the plans of USSR Gosbank, in accordance with the program for issuing long term credit to the rural population and migrants for the appropriate year. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 3 Apr 79 p 4] 7026

REQUIREMENT FOR MANUAL HAY CUTTER--Barabinsk, Novosibirskaya Oblast--At the present time, the private plots and collective horticulture continue to undergo further development. Thus the problem concerned with the mass production of diverse types of implements, for use by those who work their own plots during their free time, has become particularly acute. Let us take mowing for example. In Siberia we have excellent grasses growing among undergrowth and on unsuitable land. And it is in these areas that the equipment cannot be employed. A manual hay cutter similar to the manual saw should ideally be used for carrying out this work. I have read that the designers have created just such an instrument. But the mass production has still not been organized. Indeed, such a hay cutter should be procured by each individual having a private plot or garden plot to tend. [Text] [Moscow TRUD in Russian 1 Mar 80 p 2] 7026

ASSISTANCE FOR SUBSIDIARY FARMS--A report has been published in the newspapers concerning the decree of the CPSU Central Committee and the USSR Council of Ministers entitled "Subsidiary Farms of Enterprises, Organizations and Institutes." What measures, in the form of assistance or cooperation, are planned for such subsidiary farms? Such was the question sent in by V. Sokolkov in Smolenskaya Oblast. In the decree of the CPSU Central Committee and the USSR Council of Ministers entitled "Subsidiary Farms of Enterprises, Organizations and Institutes," emphasis was placed upon the importance being attached to developing the subsidiary agricultural production of industrial, transport and other enterprises, organizations and institutes and increasing their production of vegetable, orchard and livestock products, in the interest of improving public catering for the manual and office workers. The proposal has been made to have the party and soviet organs and the ministries and departments carry out the measures required for further developing these farms. The councils of ministers of the union republics, the USSR Ministry of Agriculture and the USSR Ministry of Procurements have been tasked with undertaking measures aimed at ensuring that the subsidiary farms of enterprises, organizations and institutes are supplied with high quality seed, planting stock and young cattle stock. In addition, they must ensure that improvements are carried out in the veterinary and other services associated with agricultural production. USSR Goskomsel'khoztekhnika and the councils of ministers of the union republics are responsible for ensuring that the subsidiary farms of enterprises, organizations and institutes, regardless of their departmental subordination, are supplied with agricultural machines, equipment and spare parts, to the same degree as for kolkhozes and sovkhozes. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 3 Apr 80 p 4] 7026

STIMULATING INTEREST IN WORKERS--Tula--Quite often I was called upon to go to a farm and assist in the harvesting of potatoes. This usually took place in the following manner. Our autobus departed the plant about 0900 hours and we traveled for 2 hours. Subsequently, we would spend a considerable amount of time searching for the brigade leader or manager and thereafter we would dine. About 2 or 3 in the afternoon, we would depart for home. The city-dwellers did not work willingly out on the fields; they merely appeared for the prescribed amount of time. And regardless of how many hectares they harvested, large quantities of potatoes would remain out in the fields after they were finished. Nor were these patrons disturbed -- the plant would not hold them responsible for their negligence. Thus, one third of the crop still remained out on the fields following such assistance. Earlier, we in Tul'skaya Oblast were visited by inhabitants of more southern regions, where potatoes do not thrive very well. For providing us with assistance in carrying out the harvest work, we issued them an agreed upon amount of the crop. After they had finished their work on a field, not one tuber could be found thereon. Perhaps it makes sense for the patron-enterprises to conclude similar agreements with the farms. [Text] [Moscow TRUD in Russian 31 Oct 79 p 2] 7026

ADDITIONAL WORK INCENTIVES REQUIRED--Krivoy Rog--During the summer, many Krivoy Rog pensioners and housewives tend the melon crops at suburban sovkhozes. Such work is profitable both for the sovkhozes and for us temporary workers. We willingly perform weed-control work and harvest the vegetables and still there is a shortage of workers on the farms. This derives from the fact that on the farms and particularly at the Gornyak Sovkhoz, where I usually work during the summer, neither attention nor respect is shown for the personnel. For example, if the administration had concluded work agreements with the temporary workers which assured them of transportation to their working areas and also proper organization of meals, then in all probability many pensioners would have appeared for work at the sovkhozes. [Text] [Moscow TRUD in Russian 20 Nov 79 p 2] 7026

LIVESTOCK FACILITIES REQUIRED--Arbuzinskiy Rayon, Nikolayevskaya Oblast--We live in a rural area, at Kavuna Station in Arbuzinskiy Rayon, Nikolayevskaya Oblast. A new 16-apartment dwelling was built for us using the resources of the Arbuzinka Sel'khoztekhnika. Certainly, we were happy to resettle into it. But here is what disturbed us. Barns should have been placed in the vicinity of the dwelling for the subsidiary farm. We cannot manage without such barns. The administration of the enterprise promised to build the barns during the second half of 1979. However, February of this new year is almost half over and such construction work has yet to commence. How is it possible for us to develop our private plots if we have no facilities in which to maintain our young pigs and chickens? [Text] [Moscow TRUD in Russian 13 Feb 80 p 2] 7026

COLLECTIVE HORTICULTURE AND GARDENING--Shakhty, Rostovskaya Oblast--The importance being attached to developing collective horticulture and gardening throughout the country is well known. Thus, assistance must be furnished to the horticultural associations. Unfortunately, the director of the Shakhty Repair-Mechanical Plant of the Rostovugol' Association, Comrade Gordiyenko, and the professional trade union of the enterprise hold to still another opinion. We have on many occasions requested that water and electricity be supplied to the collective plant orchard and that the road leading to it be maintained in the proper manner. However, no attention has been given to our requests. [Text] [Moscow TRUD in Russian 13 Feb 80 p 2] 7026

SCYTHES AND SICKLES NEEDED--Krasnodarskiy Kray--In traveling over the fields in Krasnodarskiy Kray and moving along the high roads and country roads, one cannot help but take note of the panels and pictures bearing the following inscriptions: "Weeds are the enemies of the fields and gardens. Destroy them!", "Weeds -- remove them from the fields!" Or: "Cut down the weeds surrounding your farmsteads!" Although these are fine appeals, they say very little. We are all aware of the harm caused by weeds, but what can be used for destroying them? Some individuals have scythes and sickles which are worn out, others have broken implements and still a third group, especially young people, have never had either scythes or sickles. And where can they be purchased if in fact they have already become museum pieces in the Kuban'? We are writing about this matter ahead of time, during the period of frosts, in the hope that by summertime the cooperators will have furnished some assistance in this regard. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 2 Feb 80 p 2] 7026

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TILLING AND CROPPING TECHNOLOGY

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PROSPECTS FOR WINTER GRAINS IN KURGANSKAYA OBLAST

Sverdlovsk URAL'SKIYE NIVY in Russian No 2, Feb 80 pp 22-23

[Article by I. Smirnykh, assistant professor at the Kurgan Agricultural Institute: "Propsects for Winter Grains in Kurganskaya Oblast"]

[Text] In the decisions handed down by the party and government, a great amount of attention has been given to further expanding the areas under crops and increasing the gross yields of winter crop grains. This task applies not only to those regions where these crops are grown in a reliable manner, but also to the southern Urals and Trans-Urals zones and northern Kazakhstan. Extensive testing must be carried out here on these crops and concern must be displayed for the breeding of local varieties.

Winter rye is grown for the most part in the Trans-Urals region. Tritikale and winter wheat are sown only on individual farms in the oblast and thus the methods for cultivating these crops have not been studied, nor have recommendations been made with regard to the peculiarities of the agricultural practices associated with these crops. Nevertheless, winter crops possess a number of advantages over spring crops in our zone. They are harvested 20-25 days earlier and they possess a high potential productivity.

The valuable features of winter wheat and the new Tritikale crop have attracted our attention and they have been under study on an experimental field of the Kurgan Agricultural Institute since the autumn of 1974. A comparative test of winter crops and spring wheat is being carried out on leached chernozem, following clean fallow and against an overall fertilization background of $N_{60}P_{60}$, with the sowing period for the winter crops being from 15 to 20 August and that for the spring wheat -- from 20 to 25 May.

The studies carried out confirm the feasibility of cultivating the winter crops (see Table 1).

Owing to a shortage of seed and the absence of a reserve seed fund, the sowing was carried out using freshly harvested seed and thus the field germination rate was low (55-70 percent). There were from 270 to 350 seedlings per square meter in the case of the winter crop plants and for spring wheat -- up to 420. The plant mortality rate during the wintering period ranged from 30 to 65 percent.

The year 1975 was especially unfavorable. The second half of the summer and the autumn of 1974 were dry and the plants were poorly bushed-out and weakened at the start of the winter. The summer of 1975 also turned out to be dry.

Density of Plants in Plantings of Winter Crops and Spring Wheat, number per square meter

Crop	1975		1977		1978	
	Plants	Productive Stalks	Plants	Productive Stalks	Plants	Productive Stalks
Winter rye	154	335	196	295	223	534
Winter wheat	116	203	202	288	153	352
Tritikale	117	197	180	264	205	342
Spring wheat	137	144	350	352	418	454

In the winter wheat and tritikale plantings, only 116-117 plants per square meter remained until the harvest. On the winter rye plots, 154 plants and 335 productive stalks per square meter remained until the harvest.

The productive bushiness on the winter wheat and Tritikale plantings amounted to 1.68-1.75. For all practical purposes, the spring wheat did not bush out this year. During the more favorable year of 1978, considerably more plants and productive stalks per unit of space remained for the harvest. The winter wheat and Tritikale plantings contained 342-352 productive stalks per square meter, winter rye had 534 and spring wheat 454. The highest degree of productive tillering occurred in the case of the rye -- 2.4, for Tritikale -- 1.67, with the figure for spring wheat being lower than that for other crops -- 1.08.

The productivity indices for the studied crops, by years and also in the form of an average for the 3 years in which the studies were conducted, are furnished in Table 2.

Thus the winter crops turned out to be more productive than the spring wheat by 3.4-7.3 quintals per hectare. A maximum yield of grain was obtained from the Tritikale planting -- 26.4 quintals per hectare. This came about as a result of the high grain content of the ears. The weight of 1,000 grains of this crop exceeded the weight of the rye grain by 1.91 times and that of the wheat grain -- by 1.37 times. On the average for the 3 years, the winter rye produced a grain yield of 25.5 quintals per hectare and the winter wheat -- 22.5 quintals per hectare. During the more favorable year of 1978, their cropping powers reached 32.2 and 29.7 quintals per hectare respectively. Tritikale proved to be most productive during 1977 (35.1 quintals per hectare).

Grain Yields for Winter Crops and Spring Wheat, quintals per hectare

Crop	Variety	1975	1977	1978	Average For 3 Years
Winter rye	Chishminskaya 2	15.9	28.5	32.2	25.5
Winter wheat	Orenburgskiy SKhI-48	10.2	27.6	29.7	22.5
Tritikale	Amfidiploid 206	16.6	35.1	27.6	26.4
Spring wheat	Saratovskaya 39	6.4	22.9	28.1	19.1
	HCP_{05}	1.48	3.12	3.36	-

During the unfavorable year of 1975, the winter crops exceeded the productivity of the spring wheat by 1.6-2.6 times.

Thus, the tests carried out give us every reason for assuming that the winter crops can be grown under the conditions found in the Trans-Urals region. In 1978, from production plantings at a training farm of the Kurgan Agricultural Institute, 33.4 quintals of winter wheat grain per hectare and 29 quintals of Tritikale grain per hectare were obtained.

The development and correct selection of methods for cultivating the winter crops, with the agroclimatic conditions being taken into account, will promote further improvements in their productivity.

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OVERSEEDING THINNED WINTER CROPS

Kiev SIL'S'KI VISTI in Ukrainian 6 Apr 80 p 1

/Article by I. Nechyporenko, candidate of economic sciences, assistant professor Poltava Agricultural Institute on: "Ways of Overseeding Winter Crops"/

/Text/ Winter wheat is a leading grain crop in our republic. Sometimes because of unfavorable wintering conditions, its thinned stands have to be overseeded. Farm specialists should determine accurately which winter crops should be overseeded or resown.

To achieve high quality overseeding of thinned wheat, its biological features must be considered as well as the phases and stage of its development, and also of the crop being used for overseeding. This agricultural measure must be accomplished within two to three days in the beginning of spring field work, the seed must be covered within a specific depth without plant injury.

Workers at the Department of Agricultural Machinery of the Poltava Order of Red Banner of Labor Agricultural Institute suggested a special wedge plowshare for the seed drill SZS-2,1 to be used in overseeding thinned crops. The Kryukov car building plant manufactured almost 4,500 of these working parts during the last three years, they are used successfully on oblast farms. This year 3,000 more of these improved plowshares will be manufactured.

Research and production experience showed that during seed covering to a depth of five-six cm in overseeding perennial grasses with seed drills SZS-2,1 with wedge plowshares, five to seven percent of the plants are cut, and in overseeding tillered wheat seven to ten percent. There was no visible plant injury through soil covering. But in poorly tillered winter crops sometimes twenty-thirty percent of plants die as a result of cutting and soil covering.

To avoid such undesirable effects, last year in the practice research farm of our "Yuvileynyy" Institute a narrowed wedge plowshare (on seed drill SZ-3,6) was tested in production. Its width is 16 mm (instead of the 25 mm on seed drill SZS-2,1). This improved equipment did not become clogged with seed, soil or roots during operation. It entered the soil at a depth of 5.5 cm, the rod springs were narrowed additionally for this purpose. Speed of unit movement amounted to 5.3 km per hour. Considerably fewer plants were covered with soil using this method than when wider plowshares were used. Two hundred and fifty hectares of wheat were overseeded this way where plants had died in depressions. A commission consisting of specialists from the practice-research farm and from the institute recommended these plowshares for overseeding winter crops. This year it is expected that the Kryukov car building plant will manufacture 300 narrowed wedge plowshares for the SZS-2,1 seed drill to be used in a wide production review.

For soil levelling after overseeding perennial grasses and tillored winter crops medium or light tooth harrows are used. Over insufficiently tillered wheat crops, where the tillering node is at a depth of 1.5 to 2 cm from soil surface (and sometimes even shallower) chain drag-harrows are used. Heavy chains (steel link diameter 10-12 mm) are hung at a height of 0.6-0.8 meters from soil surface on bars 1-1.2 meters in length attached to seed drill sides. Later the chain is also fastened to the seed drill with wire in several places.

In order to have as few plants (especially those which are poorly tillered) cut and covered with soil as possible, unit movement speed must be four-five km per hour.

Barley sowing norm during overseeding is somewhat higher than calculated. The degree and type of thinning must be considered (uniform or patchy), also anticipated cutting and plant soil covering, and the normal shattering during wheat spring vegetation renewal (especially when it is late). Specialists are primarily concerned with saving prior to harvesting at least 500-600 productive stems of both crops on each square meter.

Success in winter crop overseeding is also dependent on the depth of seed soil covering. On structural chernozem areas in the unstable moistening zone barley is covered to a depth of five-six cm, and on unstructured heavy flood areas in the sufficient moisture zones to a depth of three-four cm.

Last year using seed drills SZS-2,1 with wedge plowshares for overseeding winter crops many farms in the Poltava region harvested more grain from a considerable area than from fields where wheat was not overseeded or resown. At the kolkhoz imeni Makarenko in Poltavskyy Rayon, especially, harvest increase amounted to 7.3 and more quintals per hectare. Quite a lot of additional grain was obtained from overseeding winter crops by the kolkhozes imeni Illich, Khorol'skyy Rayon, imeni Shevchenko, Mashivs'kyy Rayon and others.

Our research and production experience on a number of farms in the Poltavskaya and other oblasts of the republic has shown that stubble seed drills SZS-2,1 with wedge plowshares should be used for overseeding tillered winter crops and perennial grasses. Because of its fairly narrow working reach (2.1 meters) this seed drill is useful for overseeding wheat in depressions. Its plowshares cover the seed to a depth of five to seven cm.

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TILLING AND CROPPING TECHNOLOGY

SUGGESTIONS FOR SPRING FIELD WORK IN UKRAINE REPORTED

Kiev SIL'S'KI VISTI in Ukrainian 24 Apr 80 p 1

[Ukrainian SSR Ministry of Agriculture and Ukr SSR Ministry of State Farms on: "Quick and High Quality Sowing"]

[Text] The republic's rural workers are putting much effort and political zeal into fulfilling the decisions of the November (1979) CC CPSU Plenum and December (1979) CC Plenum of the Ukrainian Communist Party. They hope to mark the concluding year of the 10th Five-Year Plan, a year of active preparation for the 26th CPSU Congress, Lenin's anniversary year with a further increase in grain, sugar beet, sunflower and other production.

The most important stage in achieving a good harvest is the successful accomplishment of spring field work. Reviewing specific conditions in various areas, the Ukr SSR Ministry of Agriculture and the Ukr SSR Ministry of State Farms noted that a lot of field work has to be done at the same time this spring: Sugar beets, sunflowers and early vegetable crops are being sown, potatoes are planted. In these conditions it is important to utilize each fair hour most effectively.

A check up indicated that on most farms technology is used very productively, field work has been clearly organized based on group unit utilization for a full twenty-four hour period. Special approval must be given to the experience of those kolkhozes and sovkhozes where, based on concrete weather conditions, wide reach units and production process combinations are utilized.

Early grain crops have already been sown on farms in Krymskaya, Odesskaya, Khersonskaya, Zaporozhskaya Oblasts. At the kolkhoz "Rosiya", Dzhankoyskyy Rayon, Krymskaya Oblast, in particular, early spike crops were sown in two working days with simultaneous mineral fertilizer application. Kolkhozes imeni Michurin, imeni Shevchenko, imeni Dzerzhyns'kyy, "Bil'shovyk", "Svitlyy Shlyakh" in the Bilgorod-Dnistrovskyy Rayon, Odesskaya Oblast, accomplished their work in one and a half to two working days.

During the all-union communist subbotnik [free overtime work] in honor of the 110th anniversary of V.I. Lenin's birth, A. O. Yatsenko, tractor operator at the sovkhoz "Chervonyy Perekop", Kakhovskyy Rayon, Khersonskaya Oblast, using a tractor T-150 with three seed drills sowed 80 hectares of peas in one day compared to a norm of 46; at the kolkhoz imeni Paryz'ka Komuna, Novotroyits'kyy Rayon, in the same oblast, six sowing units sowed 420 hectares of grain crops.

Yet, the check up indicated substantial shortcomings in the conduct of field work on a number of kolkhozes and sovkhozes. Farms in the Kominternivs'kyy and Tarutyns'kyy Rayons, Odesskaya Oblast are beginning field work too slowly. At the kolkhoz imeni Michurin, Kominterns'kyy Rayon, for example, because of poor presowing soil preparation, inadequate soil seed covering was allowed, almost a third of it remained on the surface. A similar situation occurred at the kolkhoz "Druzhba", Nyzhnyohirs'kyy Rayon, Krymskaya Oblast. On farms in the Chaplyns'kyy Rayon, Khersonskaya Oblast, all sowing units were not equipped for a night shift.

This year areas for raising corn, sunflowers, soybeans, sugar beets and several other crops according to the most recent technology are being markedly expanded. Along with use of highly effective herbicides, application of the needed amount of fertilizer to the soil is essential for these technologies. However, adequate attention has not been paid everywhere to this matter.

The vegetable fields require a lot of work now. This work is well organized on farms in the Donetskaya, Odesskaya, Krymskaya and Zakarpatskaya Oblasts where early cabbage planting is now being concluded. In areas where machines cannot be used planting is done by hand. In these oblasts onions, carrots, radishes and other early sowing vegetable crops are sown quickly. However, in the Nikolaevskaya, Dnepropetrovskaya, Kirovogradskaya, Poltavskaya, Cherkasskaya, Zaporozhskaya and other oblasts timely sowing dates for early cabbage and other vegetable crops are neglected.

In many oblasts a delay in planting potatoes is allowed because of unsatisfactory organization of sorting and seed material preparation. Up to now, only a third of it has been sorted and prepared, only a fifth of the tubers have been assigned for warming and sprouting. This work is especially slow in Ternopolskaya, Lvovskaya and Zhytomirskaya Oblasts.

The Ukr SSR Ministry of Agriculture and the Ukr SSR Ministry of State Farms have requested that oblast and rayon administrations and sovkhoz trusts take all necessary steps to make sure that within the next few days early grain and grain-pulse crops are sown, as well as perennial grasses, mixtures and other crops which should be sown now, and that the soil should be well prepared for sunflowers, corn, soybeans and other later crops.

Considering a possible quick temperature rise, all measures towards moisture conservation and its productive use should be accomplished, also measures towards creative application of soil working methods, production line work and optimal seed covering depth. In connection with the introduction of new technologies, in which optimal plant density is determined by the amount of high quality seed sown, particular attention should be paid to the establishment of a correct sowing norm for corn, sunflowers, soybeans and other crops. A proper agrotechnological level must be assured for corn and sunflowers in areas where these crops will be grown according to the usual procedures.

To provide to timely potato planting with high quality planting material, it is essential to speed up the sorting, warming, and tuber preparation with TMTD, and to plant them only in calibrated fractions. In the next few days early cabbage should be planted, as well as garlic, onions, carrots and other small-seed early planting vegetable crops.

Special attention must be paid to winter crops because of the complex wintering conditions and their late vegetation renewal. Areas to be resown or overseeded and further care measures must be determined, also which areas need root top dressing, herbicide application, etc. Seed drills with special plowshares and attachments should be used for overseeding.

Because of late spring and some winter crop resowing, it would also be expedient to expand corn sowing for seed, millet and buckwheat inthe steppe zone and in the southern forest-steppe.

Where good soil surface loosening is possible a harrowing of winter crops should be done to provide for moisture retention and weed control. This work should be approached creatively with consideration of crop condition and soil thickening; harrows should be selected accordingly.

At the same time improvements should be made in seed growing of grain and grain-pulse crops, especially buckwheat, millet peas and lupine.

Everything must be done to assure an increase in feed production. First of all, the planned crops, especially perennial grasses and root crops must be sown. Appropriate agrotechnology must be applied to obtain a good harvest of sown feed crops; measures must be taken to increase the productivity of natural feed crop lands. Seed growing of perennial grasses must be considerably improved, this should be done at an appropriate time within the specific framework of allocated seed plants from crops of previous years.

Because of the current weather conditions, the role of soil fertilizers is becoming more important. Local fertilizing should be used widely under sugar beets, corn, sunflowers and other leading crops where little fertilizer was used in basic tilling, combining this measure with soil preparation, utilizing combined seed drills. The required amount of fertilizer must first of all be applied under those crops which will be grown according to industrial and progressive technologies; phosphorus fertilizer should be used for row application; carbamide is most effective for leaf feeding of winter wheat in order to increase its quality and for increasing the protein content in feed crops.

Considering the peculiarities of this spring, managers and specialists of agricultural organs, kolkhozes, sovkhozes and scientific-research institutions should fulfill all essential measures directed towards unconditional plan and socialist obligation fulfillment with regard to the production and sale to the state of grain, sugar beets, sunflowers, potatoes, vegetables and other agricultural production in this concluding year of the 10th Five-Year Plan.

9443
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MODIFIED SEED DRILL FOR OVERSEEDING WINTER CROPS

Kiev SIL'S'KI VISTI in Ukrainian 18 Apr 80 p 1

/Article by A. Zubchevs'kyy, press center correspondent, Ukr SSR State Committee for Agricultural Technology on: "Overseeding Winter Crops"/

/Text/ Last year machine operators at the research farm of the Cherkasskaya Oblast State Agricultural Research Station utilized an effective method of overseeding thinned winter crops.

The mechanization laboratory chief Hryhoriy Derkach, team leader Anatoliy Kovtun, machine operators Volodymyr Tretyak and Pavlo Davydenko rebuilt seed drills SZU-3,6, SZ-3,6 and SUK-24. Instead of disk plowshares which do not provide for the needed depth of seed covering, they installed modified top dressing chisels taken from spiked cultivators KRN-4,2. The chisels were adjusted to a height of six-seven cm in the lower section. In the front, segments were welded onto them made from the disk plowshares of seed drills. In order to attach the working parts to guides, metal plates (12 mm thick) were welded to the posts. Three openings were drilled in each to attach seed drill guides. To change the angle of chisel soil entrance the openings were drilled in an appropriate arc.

This simple modification provided for high quality overseeding of winter crops without injuring those plants which remained and covering the seed with the right amount of soil.

This problem was solved differently by machine operators in the Zolotonivs'kyy and Drabivs'kyy Rayons. They combined overseeding of small areas with root top dressing of winter crops. For this purpose they modified seed drills SZ-3,6 or SZT-3,6 so that the sowing equipment could be turned on and off during motion. Cylinder gears of sowing equipment move from treadmills through a cog chain drive.

The Zolotoniva'kyy Rayon workers utilized a ratchet coupling from the SUB-48 seed drill. It was mounted on the chain drive between the central distributing gear box and the driving gear shaft of the sowing coil ignition. These couplings have already been built in many kolkhoz workshops.

How is this done? The driving 8-tooth gear is pinned and loosely mounted on the driving cylinder of the seed drill distributing box, through a transition bushing it is welded to the ratchet bushing of the coupling box. A tetrahedral shaft is pressed into the axle. A movable ratchet bushing is placed over it. With its aid the springs, washers and pins remain in continuous coupling with the driving gear. When needed the ratchet coupling is removed with a fork-lever. Thanks to a distance bar coupling, the driving gear is at all times within the action area of the chain drive shaft of the sowing coil ignition.

While the unit works a reliable signal system exists between the tractor operator and the sowers. For example, continuous root top dressing of winter crops is undertaken. But a tractor operator noticed a depression and signalled. Sowers with the aid of a ratchet coupling immediately turned on the sowing apparatus for overseeding.

Another variant was proposed by the kolkhoz imeni Suvorov in Drabivs'kyy Rayon. Seed drills SUK-24A were equipped with top dressing blades taken from KRN-4,2 cultivators instead of disk plowshares. Seed drills SZ-3,6 and others may be rebuilt in the same way.

Experienced machine operators will have no difficulty in rebuilding seed drills according to the Zolotonivs'kyy and Drabivs'kyy Rayon methods. This may be done in three to four hours in any farm workshop. Rebuilding benefits cannot be denied, overseeding dates are decreased and sowing material is utilized economically. Each field square meter is used rationally. Farmers accomplish three agricultural measures at the same time: cover the moisture in the soil, top dress the crops, and sow over depressions in the field. According to data from the Drabiv Agricultural Research Station, harvest increase following the introduction of this winter crop overseeding technology amounts to, on the average, 3.6 quintals of seed per hectare.

9445
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TILLING AND CROPPING TECHNOLOGY

CENTRAL CHERNOZEM--SLOWER GRAIN PRODUCTION GROWTH RATE

Moscow SEL'SKAYA ZHIZN' in Russian 25 Apr 80 p 2

[Article by A. Trubnikov, SEL'SKAYA ZHIZN' correspondent, Belgorodskaya-Kurskaya oblasts: "Output?"]

[Text] In recent years the grain production growth rate in the Central Chernozem region, as we know, has slowed down, although capital investments of many millions have been allocated here. Deliveries of mineral fertilizers and chemical plant protection agents have increased. What is the problem?

I have talked with many specialists, farm heads and scientists and listened to what they had to say. They were of like opinion: the chief cause of the lag lies in the violation of fundamental requirements of the system of land cultivation, including crop rotation. At a recent oblast conference of agricultural workers, the rector of Kursk Agricultural Institute, Prof A.I. Barbashin cited the following data. For the last four years in Kurskaya Oblast winter crops occupied 150,000 hectares less than authorized and barley 250,000 hectares more than permitted. They tried to explain the preference for barley by the yearly destruction of winter crops over significant areas. But this destruction was most often due to violation of alternation of fields: winter wheat was located over grain crops, which dry up the soil and remove many nutritive substances. A good predecessor is leguminous crops, but their share is extremely small. What has been said applies in its entirety to neighboring Belgorodskaya and other of the zone's oblasts.

Insufficient use is made of such an important reserve as high-certification seeds of the highest reproductions. This year, for example, in Kurskaya Oblast only 68 percent of the seeds of spring grain crops were first class; in Belgorodskaya Oblast--it was even less. The sowing material of leguminous and groat crops is particularly badly favored in regard to quality. In seed cultivation, the delay in conversion to its industrial basis has had a negative effect. In most places, the situation has not yet been reached for seed farms to be freed completely or even partially of selling commercial grain to the state; many of them are poorly provided with special equipment, including high-efficiency machines for cleaning and grading grain by size. There are not enough modern storehouses.

In view of significant areas of sugar beet and sunflower under grain crops, little mineral fertilizer was allocated. There was only enough for application to rows in sowing and partially for top dressing. But even with small doses, fertilizer effectiveness could have been boosted with wide-scale use of such progressive methods as root [prikornevoy] top dressing. Then take organic fertilizers. They are applied in the zone at slightly more than three tons per hectare, although maintenance of chernozem fertility, as shown by research, requires twice as much. At the same time, there are adequate stocks of humus on farms to plow it in yearly up to ten tons per hectare.

A few words on cultivation of soil. Only half is plowed for winter fallow in early, optimal time periods, and only a part of the spring crops is located on spring-plowed land. There has been a sharp reduction in the volume of such an important agrotechnical measure as shallow plowing of stubble. There are frequent cases of delayed field work, which has a negative effect on yield. It has been proved, for example, that lateness in sowing of early grain crops, even where it is only a day, reduces grain yield by 0.5-1 quintal per hectare. Losses are also caused by chronic lateness in harvesting. Even with favorable weather conditions, the harvesting of grain crops has lasted as much as a month or longer.

All these shortcomings are the result of serious defects in the organization of agricultural production and the use of available material-technical resources. It is enough to say that last year the average productivity of a standard tractor for the zone was only seven hectares--almost one-third less than in 1965. The shift coefficient of the operation of tractors and other machines has dropped.

At the same time, it is necessary to take into account that continued development of grain production is hindered by a shortage of separate machines and small doses of mineral fertilizers allocated for grain crops. Take for example, Kurskaya Oblast. Here the most effective tool in shallow plowing of stubble fields is acknowledged to be the heavy BDT-7 disk harrow, but it is being replaced (and not even in sufficient quantities) by the LDG-10 and LDG-15 stubble plows. In order to get the necessary quality of soil cultivation, it is necessary to make an additional pass or two. There are very few organic-fertilizer distributors; kolkhozes and sovkhozes are experiencing a need for high-efficiency loading equipment. They are not being issued any cable tractor shovels, while the hydraulic are not reliable in operation.

The T-150K is now the basic plowing tractor; it is equipped with a high-speed plow. But in deep plowing, it does not ensure turning over and crumbling of the soil. One is obliged to put in the furrow the less productive caterpillar tractors. There are not enough sprayers of the OVT-1 type for the application of chemical plant-protection agents; the combine load is high--200 hectares instead of the optimum 120. These results in large losses during harvesting. Clearly, planning and agricultural organs of the country and machine builders finally must create a reliable material-technical base to increase the productivity of chernozem land.

Graingrowers on their part are quite decided this year to significantly increase grain and other production. Areas of winter crops have been significantly expanded. In Belgorodskaya and Kurskaya oblasts, they are one-third larger than last year. Sowings have wintered quite well and are now being top dressed. Areas under leguminous crops in Kurskaya Oblast will be increased 75 percent. About 100,000 hectares are being set aside for clean fallow, which will ease work with organic fertilizers and improve the allocation of winter crops for the first year of the 11th Five-Year Plan.

Expansion of winter-crop fields to optimum size will contribute to a reduction of the volume of spring field work and to better organized sowing of spring crops. The Ipatov method is being adopted. Thus, 426 sowing complexes have been created on the farms of Belgorodskaya Oblast; their machine operators are competing for highest production. Something like 4,140 units for high-speed harrowing, 1,665 wide-span sowing units and 1,460 seed loaders are scheduled to go into the field. Hitched segmented harrows have also been prepared for the application of ammonia water.

It is planned to sow everywhere using the narrow-row and cross methods for optimum seeding norms. The application of fertilizers in sowing will be increased 1.5-fold over last year. Ammonia water will be applied for cultivation on sectors intended for sowing and phosphorite fertilizer--on buckwheat fields.

Agrotechnical plans include the testing and propagation of new high-yield varieties. Thus, in Kurskaya Oblast, tens of thousands of hectares have been ear-marked for Moskovskaya-35 spring wheat, L'govskiy Zelenozernyy peas, Mirnyy oats and Mironovskoye-94 millet. Seed sectors of leguminous crops are under special control.

All the conditions are present for boosting of grain farming and adding reliable stability to it. True, the old methods still make themselves felt. At a number of kolkhozes and sovkhozes in Ponyrovskiy Rayon of Kurskaya and in Gubkinskiy Rayon of Belgorodskaya Oblast, for example, a formal attitude has been expressed to the creation of sowing complexes: no full-pledged links exist for technical servicing; no attempt has been made to create the necessary cultural and living conditions for machine operators. The shortage of tractor operators is disturbing, although experience exists for the training of extra cadres exists.

Energetic measures must be taken by the engineering-technical service to make all equipment ready in the shortest possible time. So far, part of the tractors in the two oblasts has not yet been repaired. Seedgrowers still have a lot to do. The immediate task of the rural workers of this large economic region of the country is to eliminate defects as soon as possible, to successfully carry out sowing and to add stability to the Central Chernozem region.

7697
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TILLING AND CROPPING TECHNOLOGY

STAVROPOL'SKIY KRAY EXPANDS SIZE OF CROP FIELDS

Moscow PRAVDA in Russian 23 Apr 80 pp 1-2

[Article by correspondent V. Pankratov (Stavropol'skiy Kray): "The Stavropol'skiy Complex"]

[Text] The Harvest Watch: For a Good Final Result

It would seem that the springtime concerns of the grain grower are the usual ones. All the same he experiences a moment of unease anew each time he goes out to the field.

Agricultural workers in Stavropol'ya were among the first to undergo the harvest pressure. They have completed the sowing of early grains. They are putting sugar beet seeds in the soil now, and corn and sunflowers will follow. Spring crops will occupy 1.3 million hectares altogether. They are simultaneously top-dressing the winter crops, which occupy another 1.7 million hectares.

Rural workers in the kray have obligated themselves to obtain not less than 24 quintals of grain per hectare this year, to achieve a gross harvest of 4.6 million tons, and to increase the delivery of grain to the state. Currently 927 mechanized complexes are busy in the fields. The efforts of party, soviet, and economic organs, of communists and all rural workers are directed at the attainment of maximum final results, the increase of production efficiency, and improvement in the quality of products. The quest for an increase in return from the hectare is underway in many directions. One of them is the consolidation of crop rotation and, connected with this, a restructuring of work organization and of the administration within the branch.

The diversity of colors on the spring fields presents the usual picture. There are the winter crops next to shoots of wheat gathering strength, and there are the black squares of fallow. The same palette has been retained, but the colors are placed somewhat differently. Take, for example, the Kaz'minskiy Kolkhoz in Kochubeyevskiy Rayon. Five years ago sowings of winter crops in April were reminiscent of a chess board. There were 49 squares alternating with black fallow fields. Now there are four. Therefore, the size of each has increased almost ten fold.

"The equipment is more powerful, we use it in the Ipatovo manner," says mechanizer V. Nanay, "and for that you need room."

The material and technical base of the village is strengthened every year. Kray kolkhozes and sovkhozes are receiving more and more powerful tractors, combines, and other highly productive machines. It turned out that they are cramped in small fields.

What is the result? Many kray farms began to turn to larger fields. And this measure in turn required specialization and concentration of production and maximum improvement in administration.

This is what happened on the Kaz'minskiy Kolkhoz. The complex brigades which existed here previously were reorganized. Five shops were formed on the farm. One of them -- the plant-growing shop -- received all the plowland, hay fields, and pasture land. It is serviced by five mechanized complexes. V. Nanay, with his son Aleksandr, works in the grain complex, which consists of 24 persons. Each is assigned 105 hectares of plantings. It is within the power of the mechanizer to cultivate them well and on time using a high concentration of equipment. The remainder are assigned sugar beets, cultivated crops, and fodder crops. Each year they change assignments according to a rotation cycle.

This reorganization was begun on the initiative of communists and the kolkhoz board, not for the sake of form, but primarily in the name of the harvest and an increase in production efficiency. And the results are outstanding. Thanks to the consolidated crop rotation, machine productivity has risen considerably, work periods have been curtailed, and in the end there is an increase in yield. Even last year, which was dry here, saw per hectare yields of 36.6 quintals of grain, 433 quintals of sugar beets, and 36.5 quintals of corn for grain. Labor output for the production of one quintal of grain was cut to one fourth the previous level and to two thirds for sugar beets and sunflowers. The cost of products was significantly lowered. Yes, and they even require less equipment here now. For example, they have freed more than 20 tractors which they now use for other work.

Now the Kaz'minskiy machine operators have been first in the rayon to seal moisture in the soil and to sow early grains. Next come other concerns related to attaining high final yields. You see, the kolkhoz collective decided to obtain for the final year of the five-year plan per hectare yields of not less than 45 quintals of grain, 450 quintals of sugar beets, 20 quintals of sunflowers, and 50 quintals of corn for grain. Fodder fields are getting special attention. Farm workers intend to procure a sufficient supply of feed.

"We will do it," says Kolkhoz chairman A. Shumskiy. "We have the means to do all that we intend to do."

The beginning made by the initiators has been supported by agricultural workers in Krasnogvardeyskiy, Ipatovskiy, Kochubeyevskiy, and other rayons. Naturally, the restructuring of the branch is being carried out within the capacities of the material and technical base and the specifics of production. Many farms of Stavropol'ya have the prerequisites for consolidating crop rotation. Among those which have successfully begun to do so are the agricultural workers of Turkmenskiy Rayon. Two years ago there were 279 grain fields here; now there are 161. As a result, the size of many has grown to 800 hectares. The areas devoted to feed crops have been increased. This year 29 mechanized sowing complexes work on the fields. Chief of the Rayon Agricultural Administration N. Yur'yev says:

"The equipment is now utilized in a more productive manner. Moreover, we have succeeded in including in the rotation large additional areas by plowing up the paths between the former small fields. This amounts to 15 to 20 hectares of fertile land on each farm and hundreds of additional quintals of wheat."

Our machines traverse the roads between the large fields. The fields are divided by timber belts. It is impossible to do without these in the Stavropol'ya where there is considerable soil erosion by wind and water. Consolidated crop rotations make it possible to carry on an active struggle against erosion, to plow without mouldboards and retain the stubble, to place the sowings in strips, and to use the entire complex of anti-erosion equipment.

The efforts of the innovators merit attention and support. The reorganization -- and this is demonstrated by the experience of the Kaz'minskiy Kolkhoz collective -- makes it possible not only to exploit the equipment with great success, but to organize its servicing and repair better. According to estimates by kray specialists, the concentration of machines makes possible a 30 to 40 percent increase in unit productivity. This means that fewer machines are required, and all agro-technical measures can be carried out at optimum times. For the large field there are agricultural air service pilots. Flights over large fields are easier and require less fuel. The main thing here is an increase in the effectiveness of the use of chemicals.

In other words, the estimates of specialists show that by increasing the size of the sown areas the productivity of every hectare may be increased one quarter in the very near future. Furthermore, there is a great saving.

Petrovskiy Rayon is among those where new ideas are receiving special attention. The Kolkhoz imeni Sarayev, for example, has 25,000 hectares of plowland. However, many fields are small and require consolidation. The party committee and the board are trying to conduct the work better. They are preparing the necessary estimates and outlining plans on time. Crop rotation agronomist T. Stupnikova is responsible for their fulfillment. Sowing is underway, but T. Stupnikova is already studying problems regarding the locating of winter, secondary, and afterharvest crops and the planning of schedules and the sequence of harvesting on these areas. The agronomist's proposals will be reviewed by the farm managers and specialists and after refinements and corrections will be adopted. The situation is the same on other rayon farms as well.

"Consolidated crop rotation and new forms of work organization enable us to increase the efficiency of agriculture," says First Secretary of the Stavropol'skiy Kray Party Committee V. Murakhovskiy. "The July 1978 Plenum of the CPSU Central Committee set a specific task for rural workers: achieve an average annual grain yield of 20 quintals during the following five-year plan, but for farms in our zone, for example, the goal is 35 to 40 or more quintals. The efforts of party, soviet, and economic organs and of communists are currently dedicated to the achievement of this goal."

Increasing the size of the planted fields is an important reserve. Extending the boundaries of the fields seems at first glance to be a simple matter. If you approach this innovation in a formal manner, if will hardly lead to the desired result. Party committees and bureaus are making a vigorous effort to prevent the process of restructuring from turning into a fad or a fashion. There was discussion of this point at the recent conference of kray party organization activists.

Communists have noted that the main thing is gradual transition and concern for efficiency and good final results. In each individual case the kray party committee, relying on the opinion of specialists, weighs all the "pros" and "cons" of consolidating crop rotations. For example, on 77 farms it was judged economically inexpedient to change the size of the fields because of natural conditions.

The collective of the Stavropol' branch of the Kuban'giprozem Planning Institute played an important role here. Over the past 3 years it has prepared new land use plans for 130 kolkhozes and sovkhozes with a total area of 1.8 million hectares of land. This is almost half the arable land in our kray. Work has already been completed in 12 rayons. Consolidation of crop rotation remains to be done on 143 farms. Successful adoption of the innovation will make it possible to create interfarm enterprises for production mechanization and electrification.

Naturally, in new undertakings it is difficult to foresee everything. Consequently, even in crop rotation consolidation mistakes are sometimes made. In several rayons it is not clear when and which farm may plow up boundaries which have become superfluous and convert to the shop system of management. In a number of places there is poor control over the establishment of crop rotation consolidation, and advanced experience is poorly adopted. The Ovtsevod Sovkhoz in Izobil'nenskiy Rayon, where the land is subject to wind erosion, is executing a complex of soil protection measures and is receiving a stable harvest. The neighboring Moskovskiy Sovkhoz did not take things seriously this spring. Such is the case in Novoselitskiy, Budennovskiy, and Aleksandrovskiy rayons.

Adoption of the innovation has been somewhat delayed by insufficient supply of powerful tractors and sets of tractor-drawn equipment to the farms. This lack is felt especially keenly on large fields. Kolkhoz and sovkhoz managers complain that there are still not enough disc harrows, wide-swath surface plows, and machines for applying herbicides to the soil. There are also problems with the supply of anti-erosion equipment. When production is concentrated and the conversion to the shop structure of management is made, the importance of the operations dispatcher service increases, but it is difficult to supply the farms with the necessary apparatus.

The sowing campaign is in full swing on the fields of Stavropol'ye. Kray agricultural workers are fully resolved to mark the final year of the five-year plan with a large harvest and to successfully meet plans and socialist obligations for the sale of agricultural products to the state. The search for progressive methods of management and administration is helping field workers to achieve a rise in production efficiency and good final results.

7990
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ADVICE ON MINERAL FERTILIZER DOSAGES IN UDMURT ASSR

Sverdlovsk URAL'SKIYE NIVY in Russian No 2, Feb 80 pp 41-42

[Article by A. Beznosov, Candidate of Agricultural Sciences and director of the Udmurt Station for the Use of Chemical Processes in Agriculture and A. Gorchev, Candidate of Agricultural Sciences and head of a department: "On Mineral Fertilizer Dosages"]

[Text] In solving the tasks concerned with the intensification of agricultural production, one of the more effective measures is that of using chemical processes, including the use of mineral fertilizers.

In order to obtain the greatest return from mineral fertilizers, special importance is attached to determining their dosages for application purposes. The different variants proposed by many authors for computing fertilizer dosages require a large amount of information and complicated computations and they cannot always be used by the specialists on the farms. In this regard, we proposed fertilizer dosages for the Udmurt ASSR which were determined using the complex method and taking into account the local conditions for winter rye following clean fallow, winter rye following clean fallow fertilized with organic fertilizers, winter rye following occupied fallow, winter rye following occupied fallow fertilized with organic fertilizers, spring wheat, oats and spring barley, potatoes, peas and vetch for grain, flax (straw), buckwheat, cabbage (mid-season and late-ripening), cultivated haying lands and pastures (on mineral soils), cultivated haying lands and pastures on peat-humus soils, natural flooded lowland and improved meadows and dry meadows. The table on the following page furnishes fertilizer dosages for corn (for silage), annual grasses for fodder and for food roots. The data for other crops can be obtained at our station for the use of chemical processes.

Beyond any doubt, it is impossible to cover all of the many production conditions and thus, in each specific case, the recommended dosages must be corrected depending upon the degree of fertilization of the preceding crop, the technology employed in applying the fertilizers and upon other factors.

For example, on light-textured and limed soils the dosages of potassium fertilizers mentioned in the table should be increased by 20-25 percent.

Approximate Dosages for Mineral and Organic Fertilizers Used for the Principal Agricultural Crops in the Udmurt ASSR

Планируемый урожай, ц/га (1)	(2) Дозы органических удобрений, т/га	(3) Дозы минеральных удобрений (кг д. в. на 1 га)														
		азотные при обеспечении почв подвижным фосфором мг на 100 г (4)			фосфорные при обеспечении почв подвижным фосфором, мг на 100 г (5)						калийные при обеспечении почв обменным калием, мг на 100 г (6)					
		до 5 (7)	5—15	более 15 (8)	до 2,5	2,5—5	5—10	10—15	15—25	25	до 4	4—8	8—12	12—17	17—25	25
(9) Кукуруза (на силос)																
150—200	—	120	100	80	x	100	80	60	40	40	x	120	100	80	50	60
150—200	40	80	60	40	x	60	40	20	10	10	x	80	60	40	20	—
200—250	—	140	120	100	x	120	100	80	60	40	x	140	120	100	80	60
250—300	40	100	80	60	x	80	60	40	20	10	x	100	80	60	40	20
250—300	—	x	[illegible]	120	x	x	120	100	80	60	x	x	140	120	100	80
250—300	50	x	100	70	x	x	80	60	40	20	x	x	100	80	60	40
(10) Однолетние травы на зеленую массу																
80—100	—	40	30	30	30	30	20	10	10	10	40	40	30	30	30	30
100—150	—	60	40	30	40	30	30	10	10	10	60	50	40	40	30	30
100—150	20	30	30	30	10	10	10	10	10	10	20	20	20	20	20	20
150—200	—	80	60	40	50	40	30	20	10	10	80	70	50	40	30	30
150—200	20	50	30	30	20	20	10	10	10	10	30	20	20	20	20	20
200—250	—	100	80	60	60	50	40	30	20	10	100	80	60	50	40	40
200—250	30	50	40	30	10	10	10	10	10	10	40	30	20	20	20	20
250—300	—	x	100	80	x	x	60	40	30	20	x	x	80	70	60	40
250—300	30	x	60	40	x	x	20	10	10	10	x	x	30	30	30	30
300—350	—	x	120	100	x	x	80	60	40	30	x	x	100	80	70	60
300—350	30	x	80	60	x	x	30	20	10	10	x	x	40	30	30	30
(11) Кормовые корнеплоды																
150—200	—	120	100	80	90	70	60	30	30	30	130	110	90	60	60	60
150—200	30	70	50	30	40	30	20	20	20	20	60	40	30	20	20	20
200—300	—	x	150	120	x	130	120	90	60	40	x	150	130	100	80	60
200—300	40	x	90	60	x	70	60	30	20	20	x	60	40	30	20	20
300—400	—	x	200	100	x	x	180	150	120	90	x	x	180	150	130	100
300—400	50	x	120	80	x	x	100	70	40	20	x	x	60	40	30	20

(12) Примечание: знак «х» означает что без предварительного окультуривания почвы получение запланированных урожаев не гарантировано.

(key on following page)

Key:

1. Planned yield, quintals per hectare
2. Organic fertilizer dosages, tons per hectare
3. Mineral fertilizer dosages (kilograms of active agent per hectare)
4. Nitrogen fertilizers when supplying soils with mobile phosphorus, milligrams per 100 grams
5. Phosphorus fertilizers when supplying the soils with mobile phosphorus, milligrams per 100 grams
6. Potassium fertilizers when supplying the soils with metabolic potassium, milligrams per 100 grams
7. Less than 5
8. More than 15
9. Corn (for silage)
10. Annual grasses for fodder
11. Food roots
12. Note: The symbol "x" signifies that the planned yields are not guaranteed if the soil is not cultivated in advance.

When spring crops are used as cover crops, the phosphorus and potassium mineral fertilizers should be applied at the same rate as for perennial grasses. Top dressings can be applied to the grasses, using these fertilizers, only at those times when, for one reason or another, very little fertilizer was applied to the cover crop. In such a case, $N_{30}P_{30\text{-}40}K_{60\text{-}80}$ should be applied during the first year and during the second year -- $P_{30}K_{60\text{-}80}$. If the required amount of fertilizer is applied to the cover crop, then during the first year in the cultivation of clover only one top dressing of N_{30} need be applied and during the second year -- no top dressing whatsoever. Alfalfa requires raised norms for phosphorus ($P_{150\text{-}180}$) and potassium ($K_{200\text{-}250}$) fertilizers for the principal soil cultivation. In the case of buckwheat, more extensive use should be made of phosphorite meal as the principal fertilizer; chlorine-containing potassium mineral fertilizers should be applied only during the autumn, combined with fall plowing, or as a reserve fertilizer in a raised dosage and 1-2 years prior to the sowing of this crop -- in this instance, potassium fertilizers are not applied to the buckwheat.

The applying of granulated phosphorus-containing fertilizers during sowing (planting), at the rate of 10-20 kilograms of P_2O_5 per hectare, must become a mandatory method. Winter rye must be given a nitrogen top dressing (30-40 kilograms per hectare) and flax, vegetables, potatoes and reclaimed lands -- the complete requirement for mineral fertilizers, taking into account the planned yield level.

At no time should the fertilizers be sprayed: only a combined application of nitrogen, phosphorus and potassium fertilizers produces the greatest return. Mineral fertilizers must be employed mainly on limed and weed-free fields. On phosphorite-fertilized tracts, the row placement of phosphorus fertilizers can be employed for a period of 5-8 years. It should not be forgotten that shortcomings tolerated in the agricultural practices cannot be corrected even by abundant applications of fertilizers.

The effectiveness of fertilizers is dependent upon the method used for applying them. At the present time, considerable amounts of mineral fertilizer are being applied on the farms using the broadcast method, with subsequent placement in the soil by means of disk plow harrows and cultivators prior to sowing. However, studies have shown that in such cases 80 percent of the fertilizer remains in the upper 4-6 centimeter layer of soil, which dries out during the summer leaving the mineral fertilizer unused by the plants.

Thus local applications of fertilizers using disk grain sowing machines that have been re-equipped with cultivator-plant feeders and other devices are deserving of attention. The local method ensures uniform application of the mineral fertilizers directly in the moist zone of the roots and, as a rule, higher fertilizer effectiveness. When such a method is employed, the amount of fertilizer can be reduced by 15-20 percent compared to the recommended dosages for broadcast applications. The fertilizer strips (drill rows) should ideally be arranged crosswise or at an angle to the direction of movement of the sowing units.

The phosphorus and potassium fertilizers must be applied during the principal cultivation and the nitrogen fertilizers -- during pre-sowing cultivation. If fertilizer was not applied prior to the sowing of grain crops, then they should be applied with the aid of grain disk sowing machines, following crosswise sowing of the drill rows and prior to the tillering phase in the plants.

Organic fertilizers play an important role in raising soil fertility. On fields where applications of farmyard manure and composts are planned, the mineral fertilizer dosages are corrected taking into account the nutrients in the organic materials. In recent years, use has been made of large quantities of liquid farmyard manure. According to data supplied by the station for the use of chemical processes, 1 ton of liquid farmyard manure obtained from cattle contains 2.49 kilograms of nitrogen, 1.13 kilograms of phosphorus and 1.87 kilograms of potassium; liquid farmyard manure obtained from pigs -- 0.16, 0.06 and 0.07 kilograms respectively. Taking into account their assimilability, it can be assumed that 1 ton of liquid farmyard manure from KRS [krupnyy rogatyy skot; cattle] corresponds to 1.5 kilograms of nitrogen, 1.1 kilograms of phosphorus and 1.5 kilograms of potassium obtained from mineral fertilizers and liquid farmyard manure from pigs at complexes -- 0.1, 0.06 and 0.06 kilograms respectively.

When applying liquid farmyard manure, the maximum dosage must not exceed 200-250 kilograms of nitrogen per hectare, since excessive amounts would lead to lodging and bring about an accumulation of nitrates in the plants and a reduction in the edibility of the feed.

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